

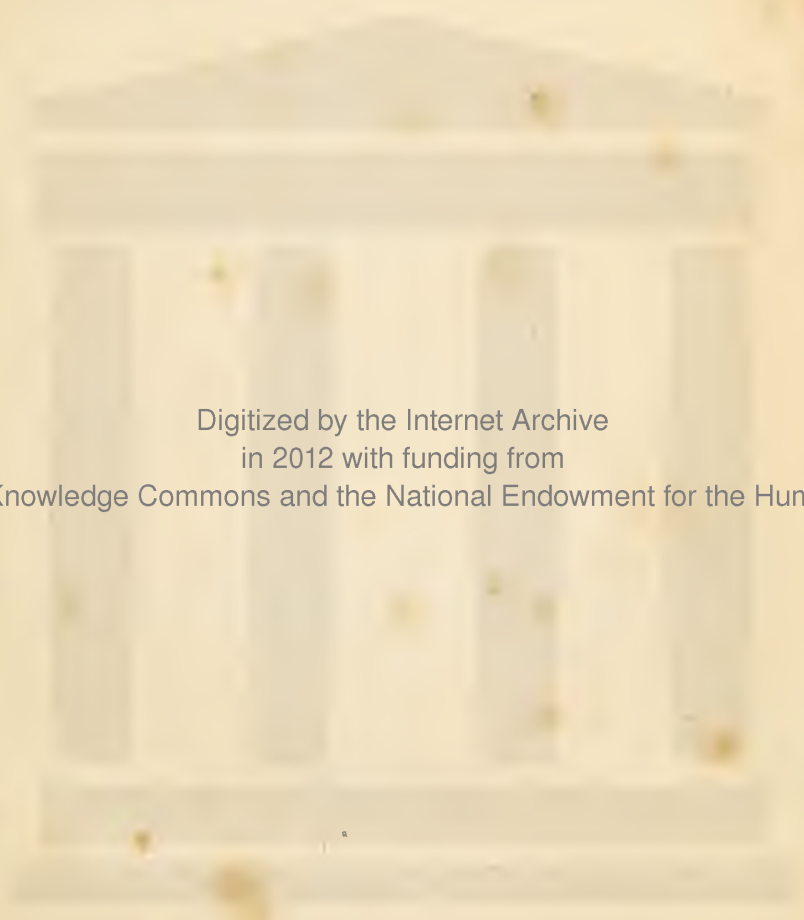
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THE
NEW-ENGLAND JOURNAL
OF
MEDICINE AND SURGERY,
AND
THE COLLATERAL BRANCHES OF SCIENCE.

CONDUCTED BY A NUMBER OF PHYSICIANS;

Homo naturæ minister et interpres tantum facit et intelligit, quantum de naturæ ordine, re vel mente, observaverit; nec amplius scit aut potest."

FRANCIS BACON.

VOLUME V.

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1816.

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THE
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VOL. V.

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No. I.

ON THE PROPERTIES OF LIFE.

BY JAMES JACKSON, M. D. *Professor of the theory and practice
of Physic in Harvard University.*

[Communicated for the New England Journal of Medicine, &c.]

SOME of the opinions advanced in the following paper may have claims to novelty; but for the most part they are destitute of such claims, and will be found to correspond with the doctrines of the best physiologists of the present age. They are offered to the medical public as containing simple views of a subject, on which all must have reflected, but on which perhaps few members of the profession have established in their own minds clear and distinct opinions. In stating this, it is not intended to intimate that the reader will find himself fully satisfied by the exposition, which will now be given, of a subject shrouded in much darkness. The human mind is never content to rest long in the pursuit of causes; and at whatever point it may arrive, it will experience an eagerness to explore still further the unknown regions before it. The attempt in this paper will be to give a definite statement of the knowledge already attained in respect to the subject of vitality. Future experiments and a more accurate analysis may reduce to a smaller number the elementary principles of this department of knowledge. True

philosophy teaches us not to multiply causes ; but it inculcates also a precept which is still more important. This is that, in the analysis of phenomena, we should be careful not to refer them to principles, which are too few and too limited to explain the occurrence of those phenomena. An accurate analysis, the true inductive philosophy can never lead to such an error. Common language shows that most physiologists have attributed the phenomena of life to a single power, which has been denominated the *anima*, the *principle of vitality*, &c. Physiologists have often rested on this opinion as on a basis generally admitted, and have troubled themselves only to ascertain in what organ, or in what subordinate system of the body this principle has its residence ; and in what manner other parts of the body derive their powers from it. Now it will not be attempted to disprove this opinion respecting the unity of the vital power. It may be allowed us to pass by this popular hypothesis until some evidence is adduced in support of it, and meanwhile to inquire what can be proved in respect to the powers, or properties peculiar to living bodies. These powers may be denominated properties of life, or vital properties. In enumerating those, the existence of which can be proved, we do not deny the existence of others. Nor, in so doing, do we deny that a further analysis may show that two, or more of these powers may be referred to some one of a character more general.

Whatever can be known in respect to the living body, may be comprehended under the heads of its composition, its structure, its functions, its appetites, and its vital properties.

In its composition we regard the ultimate elements, into which it may be decomposed when deprived of life, and the various combinations of these elements, which exist in it during life.

In its structure we regard the texture of the different parts of the body, and the combination of parts differing from each other in texture, together with the form or configuration produced by such combinations in the various organs. In respect to the form of the organs we find it possible to make imitations with common matter ; but not so in respect to their texture. We only approximate to a knowledge of their textures, and from this cause it is impossible to imitate them. But there is another reason why we cannot imitate them ; and that is because we cannot procure materials of the same composition.

It is not necessary to our present purpose to make any further remarks in respect either to the composition, or to the structure of the living body ; for these are both produced by the functions. It is by the functions of the parent that the offspring is first produced, deriving from that source a certain composition and a certain structure. Afterwards by its own functions it converts foreign materials to its own purposes, giving to them the requisite composition and structure. To the performance of some of the functions we are prompted by the appetites ; which may perhaps be considered as properties of vitality. We shall not however argue this matter at present. In the performance of some of the functions much is to be attributed to the configuration and relative position of the various organs ; and hence arise many mechanical relations between different parts of living bodies. Hence the configuration and relative position of different organs are to be regarded as of the utmost consequence in explaining the functions, and in explaining the disorders which may take place in them. But neither need these subjects be discussed for our present purpose.

In order to the performance of the functions it is not enough that the organs maintain certain forms and be composed of parts of certain textures, and that they contain matters proper to be acted upon. All this may be the case in a dead body. To the performance of the functions it is requisite that, in addition to the conditions above described, the organs possess certain powers peculiar to living bodies. Now what these powers are we must learn from an examination of the functions. Let us then first enumerate the functions performed in the human system, and then inquire what powers are demonstrated in the various organs by the performance of these functions. In making this enumeration we shall follow Bichat in his great divisions, but not altogether in those which are subordinate.

Bichat divides the functions into two classes ; the first containing those which appertain to the individual ; the second those which appertain to the species.

The functions of the *first* class he divides into two orders, the organic and the animal.

I. The organic, sometimes called the internal functions, are common to all organized beings. They relate to the individual

himself, and may be arranged under three genera, viz.; those of assimilation; those of formation; and those of excretion. In these functions generally we find hollow organs acting upon their contents; which contents, except in the alimentary canal, are in a fluid state.

In the functions of assimilation foreign matter is converted into a fluid, which is distributed to every part of the living body, distending its vessels and furnishing materials for the supply of its waste and for the renewal of its secretions. These functions are effected by very different apparatus, and are accordingly more or less complicated in different living beings. In animals a stomach appears to be essential for the purpose, but this purpose is completed within the circulating vessels. In plants it is effected by the vessels alone.

The functions of formation are performed by the extreme vessels. In health the capillaries always hold in readiness the blood, from which the vessels which perform exhalation, secretion and nutrition immediately derive their supplies. This is true at least of all large animals.

The excretory functions are performed in part by processes analogous to secretion. This is true however only of those excretions, which take place from the blood. Those excretions in animals which take place from the alimentary canal, consisting principally of matters which have never properly entered into the living system, are performed by different organs. On this head it is not requisite to be more particular.

II. The animal functions are such as are performed only in animals. They are not all of them however performed by all animals. They have been called the external functions; yet certainly some of them, viz. some of the intellectual functions, cannot be said to relate to external things. This remark will not probably be controverted in respect to the exercise of consciousness, which is in every view an internal function. In the performance of the animal functions we have not any evidence that there are hollow organs, which act upon their contents; nor indeed that there take place any mechanical operations in the organs, except in locomotion and in the voice. The animal functions may be divided into three genera, viz. those of sensation; those of the mind, or intellectual functions; and those of motion under the control of the mind.

It is not necessary to remark here on the characters of these functions.

The functions of the *second* class are divided by Bichat into three orders. Under the first and second are included those of the two sexes ; under the third that common to both. In these functions we find some, which are analogous to those called animal, and others analogous to those called organic.

These several functions are not independent of each other. Various relations are maintained between them. These relations can some of them be explained upon principles which are called mechanical ; others can be explained only upon principles peculiar to living bodies, and may therefore be denominated vital relations. The vital relations are some of them maintained through the medium of certain organs, viz. the nerves, interposed between those organs by which the functions so related to each other are performed. These relations may be called nervous. Other vital relations are performed between parts, which have not any peculiar connexion with each other. It is probable that they are maintained through the medium of the encephalon, spinal marrow and nerves. By these relations we find one part suffers either pain, or pleasure from an affection of another part ; or one part has its actions arrested, diminished, increased, or modified, in consequence of the affection of another part. From the analogy manifested in these relations between different parts to those noticed between different individual animals, these relations have been called sympathetic.

These remarks on the functions are sufficient to enable us to explain the vital properties, which are exercised in the performance of them. In describing these properties it is not requisite to pursue the rigid analytical process, by which their existence may be discovered. It will be enough to describe the different vital properties, and to show that these are exercised in the various functions.

The vital properties, whose existence is most clearly ascertained, are the following, viz. mobility, irritability, vital affinity, vivification, sensibility, sympathy, and the intellectual powers.

Mobility is the power of original motion in living beings. It resides most especially in the muscles ; but it is not confined to them, as it is found to take place in parts destitute of the pecu-

liar structure of muscles. It cannot be necessary to show that the motions performed by our muscles do not arise from impulse ; that these motions are not communicated to the muscles from any other bodies in motion. Neither is there any reason to attribute the motions in living bodies to any of those powers called attractions, which occasion motions in inanimate matter under certain circumstances ; such as the attraction of cohesion, of electricity, and of galvanism. Whether mobility is a property inherent in the muscles, &c. or is derived to them from other organs, are questions not requisite to be decided for our present purpose. It is enough to show that it is a property belonging to living bodies. It is a property manifested both in the organs, which perform the organic and in those, which perform the animal functions ; and likewise in those performing the functions of the third class. The motions which are performed in these various organs, are some of them very sensible ; others are insensible. The performance of these last is manifested by their effects. These motions are insensible, because the organs performing them are extremely small, and the extent of their motions too limited to be measured by our organs of sense. The presumption is, that the power of motion, or mobility is the same in all the organs enjoying this power, unless some evidence of a difference in different organs can be demonstrated. Mr. Bichat has however distinguished this property in different organs, by different names, without any such demonstration.

Irritability is the property of being excited to motion by the influence of something exterior to the moving organ. This is a property closely allied to mobility, and it is spoken of by many physiologists as comprising this latter property. The two properties are however evidently distinct in their natures. Irritability is indeed always found to exist in the organs possessing mobility. Without the former the existence of the latter could never be discovered ; for parts possessed of mobility never perform spontaneous motion, but are always excited to motion by the agency of external causes called stimuli. Now stimuli act on the irritability. But it is not necessary that stimuli be applied to the organ excited to motion. From this we find that irritability may reside in parts which do not possess mobility ; and from this circumstance, were it not otherwise shown, we

might infer that the two properties are distinct. When a stimulus occasions motion in the intestinal canal in a sound state of the parts, it is applied to the mucous membrane or coat, and not to the muscular coat, by which the motion is performed. There is a common case which is analogous to this, but in which the parts are much farther removed from each other. This is the sudden and violent excitement of the respiratory muscles in sneezing, in consequence of the application of a stimulus to the mucous membrane of the nose.

Irritability is variously modified in different organs; being adapted in each to the appropriate stimuli of each. The various parts performing the organic functions have each their respective stimuli. And although the same stimulus will act on two or more of those parts, it will produce in them different effects.

It is supposed that this same property, irritability, is acted upon, when the functions of the secretory organs are induced by any cause, or agent influencing those organs. This supposition is connected with the opinion that secretions are, in part at least, performed by certain motions of the small vessels. Highly probable as this opinion is, it is rather an inference than a fact demonstrated.

The next vital property, which was enumerated, is one which has not been distinctly recognized by physiologists; although the facts, from which the existence of this property is inferred, have been duly regarded in modern days. To the property in question I have ventured to give the name of *vital affinity*. In respect to inanimate matter it is well known that different bodies, whether elementary or compound, exercise mutual attractions, or affinities; and although the force of these affinities differs materially in different cases, yet the power is thought to be of the same kind in all cases. The principal objects of chymistry are to ascertain these powers and to measure their relative strength. The power exercised in every such case is called *chymical affinity*. Now the ultimate elementary particles in living bodies are the same as those in common matter, or inanimate substances. These particles in living bodies are combined by affinity or attraction; but they are not combined in the same manner as they are in inanimate matter. When they become parts of a living

body they are controled by new affinities. This power is of one kind in all these cases, and being analogous to chymical affinity, yet differing from it, there does not seem any more appropriate name for it than the one above mentioned, viz. vital affinity. The evidences of the difference in the combinations in living and in common matter, are so numerous and so familiar, that it cannot be necessary to detail them. It must be sufficient to refer to the decomposition, which follows death in both animal and vegetable bodies. This decomposition results from the new arrangement of the elements of those bodies, when those elements are restored to the influence of chymical affinity. Had they been combined by chymical affinity in the living body they would not undergo decomposition; for the dead and living bodies are placed in the same situation, or exposure, as regards the action of external causes. It is probable that vital affinity is first communicated to foreign matter in the process of digestion; that, when the chyle enters the blood-vessels, some part is thrown off, or separated from it by some of the emunctories; and that the parts which are left are thereby so varied as to form blood. It may be, however, that the affinities of the elements of chyle are changed in some measure in the blood-vessels and that thus the same elements are made to form a new compound. Be this as it may, it is certain that when the nutriment has become perfectly assimilated, so as to form blood, the elements which had first constituted that nutriment and now constitute the blood, have had their affinities changed. It is true that the solid articles and some of the liquid articles, which are employed for the nutrition of man and of other animals, consist of matter which has recently enjoyed life, and of which the elements have not yet become arranged, or combined in accordance with their chymical affinities. No doubt the assimilation is thus facilitated, and that the assimilating powers of man and of most other animals are not sufficient to enable them to change the affinities of the elements in common matter. Man for instance cannot get nourishment from air and water, although these contain the principal ingredients which compose his body. But there are a vast many living beings, viz. plants, which can assimilate to themselves such common matter, and it is from such originally that those substances have been formed which serve for nutriment to man.

And in respect to those substances which serve us for nutriment, though their elements are combined by the general power of vital affinity, yet their combination is very different from that of the same elements in chyle and in blood. Their conversion is effected by the assimilating organs, whence those elements receive new vital affinities.

Very similar changes take place in the formative functions. By these functions the various solids and various secreted fluids of our bodies are formed. They are formed from that heterogeneous fluid called the blood. In one instance, that of fibrine, or muscular fibre, the matter formed seems to consist almost precisely of coagulating lymph changed from its fluid to its solid state. This is one of the primary elements of the blood. But in respect to other parts formed from the blood, nothing like this appears to be true. In respect to all such parts then it would seem that the matter, which composes them, has its elements endowed with new vital affinities in the acts of secretion and of nutrition. Vital affinity is not in these functions given *de novo*; it is only changed or modified. This modification can be effected only by the extreme vessels in the respective parts; for to those vessels only are those substances exposed, which undergo the change.

The fourth property is another to which I have ventured to supply a name. The conversion of matter from the inanimate to the animate state is among the most wonderful and unaccountable operations in nature. When a piece of iron is rendered magnetical by the application of a magnet, or when one body is electrified by another previously in that state, we can conceive that these changes are wrought by the transmission of some matter from one body to the other, or by a new arrangement in the constituent particles in the body which undergoes the change. But when matter, which was inanimate, is received into a living body, becomes a part of it, and acquires its peculiar powers, we cannot carry our explanations beyond the distinct statement of the facts. That which lives has the power of making other matter live. It has the property of vivification. Its various parts have this property so modified, as to give to new matter the various properties of those parts respectively. While the matter of living bodies is continually changing, and

individual beings are each in turn losing their vitality, as regards their material systems, these vital powers are preserved in perpetual existence. They were given to the first created beings, and they have been transmitted from them through the successive races of their offspring, and seem capable of being extended and renewed indefinitely. In the formation of every new being, in the formation of every new part, the organs of formation, while bestowing on such part its structure and its composition, also bestow on it its appropriate vital properties. In so doing, those organs exercise a vital property, and it is to this I have given the name of vivification.

The four properties which have now been described may be found in every living organized being. These properties are perhaps all that are necessary for the performance of the organic functions. The third of these properties, vital affinity, must exist in every part of matter which enjoys life. It is the last property which is lost after general death takes place. The other three properties are obviously confined to particular organs. Mobility exists in the muscles, in the vascular organs, and in all other parts which perform motion. Irritability exists in the same parts, and likewise in the various surfaces of the several organs which are exposed to the action of stimuli in the common functions. Vivification exists in the minute vessels which perform the formative functions, or the functions of nutrition and secretion.

But all these parts, and even the fluids themselves, are possessed of vital affinity. Were not the elements of our fluids, as well as of our solids, combined by affinities not chemical, the former would not, like the latter, be subject to decomposition after death.

Sensibility is the fifth property which was mentioned. We have not any reason to believe that this exists in any vegetable. The property in certain plants, whence they are called sensitive, is obviously irritability, not sensibility. We cannot indeed conceive of sensibility where there is not intelligence. Sensibility is that property in the bodily organs, by which we are apprized of the impressions made on those organs by external material substances. Yet this property always supposes a corresponding property in the mind, viz. the power of perception. It is in the correspondent exercise of these two powers that we become

acquainted with the existence and characteristics of external things.

There is a certain kind of sensibility, which is common to all parts of the body to which nerves are supplied. This is varied in degree in different parts. There is also a specific sensibility in certain organs by which we recognize certain particular qualities in bodies. The facts on this subject are familiar, and the inferences perfectly obvious.

The sixth property among those enumerated is sympathy. The existence of certain relations between different parts, which relations were called sympathetic, has been already mentioned. Whether the name, sympathy, be well chosen or not, it is certain that parts placed at various distances from each other in living bodies do exercise mutual influences, besides those called nervous; and these are such, as are not found to be exercised by different portions of inanimate matter on each other. The influences so exercised cannot be attributed to any of the properties of vitality already described. They must be attributed to a peculiar power, and to this so far as it has been noticed the term sympathy has been applied. Relations of this kind exist not only between different parts of the body, but also between the mind and the body. The full consideration of all that relates to this subject would extend this paper too far. It may perhaps be taken up at some future period.

Lastly, the intellectual powers, or the properties of mind are peculiar to animals, differing however very much in those of different species, and enjoyed in the greatest perfection by those of the human race. The consideration of these powers does not come within the ordinary limits of physiology. A few remarks will be made on them so far as they have an obvious influence on the body.

The connection of the physical and mental powers in the recognizance of external objects has been noticed. There is a similar connection exhibited in the performance of the voluntary motions. Mr. Stewart informs us, that by the power of volition we control our intellectual operations, calling up such thoughts, or trains of thoughts as are requisite on any occasion for the purpose of comparison, or for any other purpose. Here the operation of that power takes place within the mind, and may not re-

quire the aid of any corporeal organs. But the same power of volition acts upon the body and is able to command the motions of certain parts of it. The motions are performed by the muscles, the mind furnishing only the stimulus, or exercising an influence analogous to that of a stimulus. Accordingly the mind has been said to exercise the *stimulus of volition*, when it produces action in the muscles. But the mind does not appear to act directly upon the muscles; for it does not act upon them, although it may exercise a volition, when the brain is deranged in certain modes. Nor, though the brain be altogether sound, can the mind act on the muscles, if the nervous connection between the brain and the muscles be destroyed. From this it appears that the nerves going to the voluntary, or animal muscles have a power of transmitting the influence of the mind to the muscles, just as the nerves belonging to the organs of sense transmit to the mind the impressions made on those organs. This power, which certain nerves possess, of transmitting the commands of the mind is one which has never received a name, and to which I shall not venture to give one. It is certainly something very distinct from the power of volition itself, which resides in the mind.

The only remaining influence of the mind upon the body is that which it exercises by the power of sympathy. When the mind is engaged in the observation, or consideration of subjects peculiarly interesting to it, the functions of the body are often affected, and that sometimes in a very powerful manner. Here we have the phenomena of passion. This subject has been very justly treated by Bichat, but he does not seem to have exhausted it. If the power of sympathy be made the subject of a future paper in this Journal, the display of it in the production of passion will be particularly noticed.

CASE OF AMPUTATION AT THE SHOULDER JOINT.

Reported by J. B. WHITRIDGE M. D. of Charleston, S. C.

[Communicated for the New-England Journal of Medicine, &c.]

AT the battle of Stoney Creek, in Upper Canada, on the 6th of June 1813, William Peters of the 2d Regiment of Artillery, was wounded in the shoulder. A musket ball of the largest size, entered just below the origin of the short head of the biceps flexor cubiti muscle; passed in an oblique direction through the head of the os humeri, and made its exit near the attachment of the middle portion of the deltoid muscle, to the acromion process of the scapula. The wound produced very considerable contusion, and unusual laceration, which induced some gentlemen to believe, that the wound was occasioned by a grape or cannister shot. From the deficiency of Surgeons, I here acted as Surgeon to the first Brigade commanded by Brig. Gen. John Chandler, under an order from Maj. Gen. Dearborn; there being no other Medical Officer attached to it. The other Officers of the Medical Staff belonging to this Brigade, were left behind, in charge of the sick at Newark; whilst I was ordered on with this Division of the Army, upon the expedition against Burlington Heights, at the head of Lake Ontario.

In consequence of the retreat from Stoney Creek, the situation of the wounded was deplorable. They were hastily thrown into waggons, and transported to a place called Forty-mile Creek, a distance of fourteen miles, over the worst waggon road that can possibly be conceived.

At Forty-mile Creek, they were placed in barns during a rainy night, and the next day, I received an order from Col. Burn (then Commanding Officer of the Division, after the capture of Gens. Chandler and Winder,) to take all the wounded, both British and American, and transport them in boats to Fort George, and place them in the General Hospital at Newark. This order was executed.

I took them in open boats (operating and dressing wounds while the day-light lasted; and the next day also, when I arrived at Fort George) and on the 8th delivered them to the Hospital Surgeon at Newark. As he had but few assistants, I remained with them two or three days, after which, I did not see Peters, nor any of them again, for several weeks. During these few days, his wound was extremely painful.

In the latter part of June, I was requested by the attending Surgeon to see him, which I did, and recommended amputation at the shoulder joint, an operation, which at that time, might have been performed with much more ease, and with much greater hope of success, than at any subsequent period, though rendered difficult, by the extremely diseased state of the bones, muscles, and integuments, and particularly by the great waste of the soft parts, in consequence of an extensive suppuration.

The attending Surgeon, and all those attached to the General Hospital declined so desperate an operation. The soldier also, at first refused to submit to the operation, in consequence of the faint hope of cure, held out to him by Doctor D. the Hospital Surgeon, into whose charge he was delivered.

After this I saw him several times, he still persisted in his obstinacy whilst his constitutional, as well as his local disease, were both daily becoming very much worse.

Being an extremely timid, irresolute man, he suffered his disease to advance, (notwithstanding all that was said to him) until the last of July, when he sent for me to operate; being now persuaded, as I before told him, that without an operation, death was inevitable. On examination, I found him extremely emaciated. He was upon the very verge of the grave, being excessively reduced by cough, diarrhœa, hectic fever, and copious suppuration, so that he probably could not survive eight and forty hours.

I at first thought it was too late even to attempt an operation; that the integuments had become so diseased, that one could not be performed; and if it were, it was believed, that there was not more than one chance out of twenty for his recovery; and that it was very questionable, whether the patient would be able to survive the operation. Finding however, that the sol-

dier had acquired resolution and courage in the last expiring moments of life, I resolved to give him the only chance which my art afforded. "*Anceps remedium potius quam nullum.*"

I devised a plan of operating,* the only one, in my judgment which promised the least hope of success: and the next morning called a consultation of all the Medical Staff at the Post. To them I communicated my plan; they acceded to it, and the operation was agreed on.

Every thing being prepared, the patient was seated upright, on a table of convenient height, under an arbour, and supported by assistants. The occurrence of hæmorrhage during the operation, was guarded against by an assistant who made compression upon the subclavian artery, where it passes over the first rib, immediately above the clavicle.

The arm being raised to an angle of about seventy-five degrees from the body, i. e. fifteen degrees below a horizontal line, and supported in that situation by another assistant; with a large scalpel, I commenced my first incision upon the top of the shoulder, behind the articulation of the clavicle with the processus acromion. This incision was continued down upon the outside of the shoulder, in a zigzag direction, quite into the axilla, dividing only the skin and membrana adiposa. At the same point, I commenced my other incision, and continued it down in the same manner upon the inside of the arm, until it met the angle of the former in the axilla, taking care that the curvatures of the one corresponded with the other.

Within these two crooked incisions, I was enabled to include almost the whole of the diseased portion of integuments, which was the object of their curvatures. Each of these flaps were successively raised, and the fibres of the deltoid muscle cut through, then the long head of the biceps flexor cubiti, and the capsular ligament were divided, and the head of the os humeri dislocated, by the assistant who depressed the arm, and slipped the head of the bone from the socket. I then took the catlin, being the most convenient sized knife that I had, and with one sweep

* Something in the style of Mr. Charles Bell. See his *Operat. Surg.* Vol. 1st, p. 268, Amer. Edit.

divided the short head of the biceps flexor cubiti, coraco-brachialis, and the whole of the remaining muscles, tendons, nerves and blood vessels. I immediately seized the artery with my forceps (the flow of blood however, was completely commanded by the compression which was made above the clavicle) whilst another assistant, placed a ligature upon the artery, by which it was effectually secured. Except the axillary artery, one small muscular artery, was the only blood vessel that required a ligature.

In consequence of caries, I next proceeded to remove the coracoid process of the scapula, which I did by means of Hey's saw, and then in like manner, the anterieur and superiour portion of the processus acromion; both of which I pared down smooth, to prevent any irritation to the integuments.

I then brought down the flaps, which fit so accurately together, as only to form a line, some part of which was horizontal, some part longitudinal, not unlike an artificers dove-tailing. These were secured by means of strips of adhesive plaster; the usual dressings applied, and over the whole the spica bandage.

During this operation, very little blood was lost, the prevention of which was all important, as the loss of any considerable quantity, in his extremely weak, and debilitated state, would have proved fatal.

The gentleman placed at the wrist, to examine the pulse, to watch the aspect of the patient, and to administer stimulants, as occasion might require, in the midst of the operation, requested me to stop, and let the patient recover a little, as his pulse* had become imperceptible. I did so. Stimulants were repeated, and he soon recovered, so that I was able to go on with the operation. The night following, he passed more comfortably, than any night previous for some time. The next day, he appeared cheerful and animated; seemed much stronger, and took food with relish. On being asked if he felt as well as before the operation, he exclaimed with as much animation as his feeble system would admit. "Yes" said he, "and a hundred times better."

* See Dorsey's Surgery, Vol. 2d, p. 246.

His cough, diarrhœa, and hectic fever soon left him. He acquired strength rapidly, and at the first dressing (which was on the third day after the operation,) could rise up in bed without assistance. Some portion of the lips of the wound united by the first intention, and the remaining portion gently suppurred.

There was a large hole left in the integuments, contiguous to the coracoid process, which could not be obviated by the operation. Granulations gradually formed over the remaining portion of this process, which closed the orifice, and the wound occasioned by the operation, nearly cicatrized.

The patient was elated with the hope of recovery, and I myself, felt flattered with the prospect of success.

This unfortunate Soldier, in whose case I felt very much interested, was reported convalescent for four weeks, by the attending Surgeon, after which, in consequence of sudden cold, all his horrible symptoms returned. He was attacked with diarrhœa, more severe than ever; colliquative sweats attended with fever, supervened, and he died five weeks after the operation.

Charleston, 18th December, 1815.



DR. HALE'S REPLY TO MR. BRODIE'S REMARKS ON HIS INAUGURAL DISSERTATION.

To the Editors of the New-England Journal of Medicine, &c.

GENTLEMEN,

IN the New-England Journal for April last, are some remarks by Mr. Brodie upon my inaugural dissertation, to which I beg leave to reply in your next number. I was absent on a journey immediately after receiving the number for April, until it was too late to write for your last.

Mr Brodie objects to my experiments that they were not exact repetitions of his; and therefore not entitled to much consideration in estimating the causes of animal heat. It never could be doubted that experiments performed as his were, and by a gentleman of such distinguished character, were perfectly correct in all their details. Still it does not follow that similar re-

sults will be obtained from somewhat similar experiments, where some circumstances are different. Hence the propriety of such experiments being repeated by different persons. For unless an exact imitation in every particular is studiously sought for, it can hardly be supposed, that some circumstances, will not differ, so as to lead to additional information. It may perhaps, be an inaccuracy of language to call this a *repetition*, but if it is, it is an inaccuracy that can never mislead, where the details of the experiments are particularly given.

Notwithstanding Mr. Brodie's remarks therefore, I cannot but consider the circumstances in which my experiments differ from his as the most important part of them. I will notice the several particulars mentioned by Mr. B. in the same order he has done.

1. Mr. Brodie used rabbits for his experiments, whereas I used dogs for some of mine, and cats for others. The former were, it seems, more readily obtained by him of the same age and size, and more easily managed; to me the latter offered the greatest facilities. Besides, he had already ascertained what would be the effect of artificial respiration in those animals. Had the result with different animals been the same as with those, it would have added strength to his conclusions against the chemical theory of animal heat. But that they were different, by no means disproves them. In my dissertation I stated decidedly that I considered the state of the living principle to have a very powerful influence in producing heat, and gave some experiments performed with the express view of ascertaining, as far as possible, how far this influence extends. Artificial respiration evidently prolongs many of the vital as well as the chemical actions. And it appears from Mr. Brodie's remarks, that the vitality is preserved much more completely in dogs and cats, than it is in rabbits. Here then is a very considerable reason for the difference of our results.

2. Mr. Brodie complains that I did not decapitate the animals in my experiments. But Mr. B. had already shown that the effect upon the respiration was the same, whether the spinal marrow merely was divided, or the head separated. So far as the chemical results were concerned therefore, the former mode was equally certain, and more convenient. For as the same de-

gree of division was practised on both animals in each experiment, the comparison between them was more perfect, than if the head was separated. The effects of vitality in producing heat had not much excited my attention, until a subsequent part of the investigation.

3. I was not particular in examining the respired air. Mr. Brodie observes, "Had he found as I did, that the animals in which the artificial respiration was employed, consumed as much oxygen, and evolved as much carbonic acid, as under ordinary circumstances, he would have regarded his experiments as equally conclusive with mine, against the chemical theory of animal heat."—I confess, I cannot perceive upon what this opinion is founded. So far was I from considering the different circumstances of natural and artificial breathing, as an argument in favour of any theory, that I actually took it for granted, the chemical effects were the same. They had been proved to be so by Mr. Brodie; and I found in one or two instances when I examined, that carbonic acid was expelled, and that *always* the changes in the blood, which are usually attributed to chemical actions, were completely and brilliantly accomplished. I do not perceive the necessity therefore of examining very particularly, what is so well established.

Mr. Brodie seems to consider my experiments as professedly designed to support the chemical theory. In this he is mistaken. At the time I commenced experimenting, I had no decided opinion upon the subject. Nor indeed when I had finished was I at all satisfied. I was very far from imagining that I had decided the question. That artificial respiration under some circumstances is the means of producing animal heat; and that this heat is at least in some degree owing to prolongation of the vital actions, is, I think pretty clearly shown by my experiments. Whether any of this is entitled to the appellation of positive knowledge, I leave to others to decide.

I am, Gentlemen,

Your Obedient Servant,

E. HALE, JR.

Gardiner, Maine, Sept. 15, 1815.

COLLECTIONS IN MORBID ANATOMY, No. VI.

A case of Psoas Abscess, communicating with the Canal of the Vertebra.

BY JAMES JACKSON, M. D.

[Communicated for the New-England Journal of Medicine, &c.]

MR. H. D. P. first called on me Sept. 7, 1815, and shew me a tumour on his back. The case coming more within the province of surgery than of medicine, I asked the assistance of Dr. Warren, at the first moment.

We found a tumour extending from the middle lumbar *vertebra*, rather obliquely to the right side and downwards so as to cover a part of the *os ilium*. This tumour projected about an inch on an average, more at the centre, and less at the circumference. It had not any hardened parietes, or margin. Toward the *vertebra* and at the upper part, its extent was well defined, but at its outer end and lower part, this was not the case. The tumour, evidently contained a fluid, but the fluctuation gave the idea that this was not very thin. The part was free from pain and could be examined freely without occasioning uneasiness.

Inquiring its history we learnt that the patient had noticed some tumefaction in the part for a long time, at least for a year; that this had increased slowly and without much observation until within six or eight weeks; within that time it had been increasing more rapidly. He stated that he had not experienced pain, nor even uneasiness in the tumour; nor any unusual sensation in the vicinity, except an occasional numbness in the upper and back part of the right thigh. We could not learn that the functions of any internal organs were impaired. The operations of the stomach and bowels, and of the urinary system were performed regularly and without pain. Neither was there any difficulty of motion either in the back, or in the lower extremities.

The patient said that he had had frequent sicknesses within the last five years. He had once been sick with a fever of long

continuance in which he was very greatly reduced. He had experienced twice milder fevers, which were also of long continuance and from which his convalescence had been very slow. In the winter next preceding, about January, he had undergone a sickness attended with many irregular and distressing symptoms. The most prominent of these symptoms were great prostration of strength, severe and excruciating pains in his limbs, back and neck, an entire derangement of the functions of the alimentary canal, frequent twitchings and on two occasions convulsions of the whole body accompanied by a loss of consciousness. The pains recurred at irregular intervals and without obvious causes. During this time the pulses were sometimes very frequent, at other times slow, beating less than fifty times in a minute.

In the summer of 1813 and again in 1814 he had suffered pain in the lumbar region, which had been considered rheumatic. He was disposed to think that the tumour began to form during or about the time of this last attack; but in truth the first rise of the tumour had been so gradual as not to be distinctly noticed.

The appearances of the tumour and the symptoms accompanying it did not enable us to decide satisfactorily as to its nature. Its contents might be purulent, and the disease might extend to the *psoas* muscle; yet this was rendered improbable by the absence of pain, by the want of indurated parietes, and by the non-occurrence of chills, or other symptoms of constitutional irritation. It appeared to us more probable that its contents were mucous, and that they were effused from the internal membrane of a *bursa mucosa*, which had undergone a gradual enlargement. In either case, as the tumour was now very large and had of late been increasing with considerable rapidity, we thought it necessary to effect its evacuation. For this purpose we resolved first to attempt a discussion and meanwhile to endeavour by repeated examinations to satisfy ourselves more perfectly in respect to its nature. To promote discussion leeches were applied twice at the distance of about a week, and each time this application was followed by that of a vesicating plaister. After these trials had been made, it was obvious that the size of the tumour was increasing. It seemed that an opening would become inevitable; there was nothing which indicated a natural effect for this purpose; and until an opening should be effected the extension of the disease must continue to take place.

On the 17th of September, the tumour was opened by Dr. Warren. An incision was made through the integuments in the part where the fluid seemed to be nearest the surface, at about two inches and a half from the spine; the fascia was then cut through and then some cellular membrane, which was scarcely at all indurated by adhesion. Nothing was found like a dense coat under the fascia. At the opening thus made there issued pus, which was sweet and well-conditioned. This was discharged in very large quantity, but so that it could not be collected in any vessel. It could not be estimated at less than a pint. An endeavour was made to evacuate the whole of this fluid with a view to produce adhesion in the edges of the wound; but this was not successful. On every change of position the pus would flow anew, and pressure would not command it. The patient became faint, recovered in some measure and became faint again during our efforts; and it was at length found necessary to abandon the attempt. The wound was closed by adhesive plaister, and otherwise properly dressed, and the patient was laid in bed. The pus continued to discharge, the plaister was detached and the adhesion rendered impossible.

The patient was weakened by the operation, and although he professed to feel well for a day or two, he never recovered his former strength. He was unwilling to complain, and had before this time represented his general health as good; but it is now very certain that it had not been so good as he thought it. He had experienced a debility and indefinite feelings of ill health, which he had not acknowledged to any one, nor very distinctly recognized himself. He was very thin, and this was attributed to his previous sicknesses and to his rapid growth; but it had arisen principally from the disease in the loins.

About the fourth day after the operation symptoms of constitutional irritation began to supervene; and these continued until the termination of his life, although with frequent changes in kind and in degree. He never suffered pain in the diseased part, and could even lie upon it and permit it to be pressed without the least suffering. At first the part discharged good pus in great abundance; about the 8th or 10th Oct. this changed to thin serous fluid and gradually diminished in quantity. It ceased entirely two or three days before death. The constitutional symp-

toms were rapid pulses, dry skin, irregular variations of temperature, loss of appetite and entire derangement of the functions of the stomach and bowels, pains oftentimes excruciating and occurring irregularly in the limbs and neck, sometimes in the trunk, general distress, restlessness, jactitation and watchfulness. The sufferings, which were often very severe, were relieved at times by intervals of ease and apparant amendment. The pulses varied frequently in force and frequency. They were commonly from 96 to 120, but during the last week they were at one time 72, at several others 144, at some times 160 and even more rapid than could be counted. On the 15th Oct. in the morning he underwent a very marked change. He lost the power of speech except of the word "no," and his intellectual powers even evidently impaired. This change commenced with somewhat of a general agitation, which however was short and not very exactly marked; this was accompanied by a great change of countenance, by a dissolution of the features and by the expression which precedes the termination of life. Within twenty-four hours there ensued paralysis of the right extremities, and imperfectly of the muscles on the right side of the face. The countenance mended in the course of the two following days and the mind was at moments restored to its healthy state; but I doubt whether it was ever so vigorous after the 15th as before. In the week following the 15th he underwent various distresses, and among other symptoms had frequent spasms both tonic and clonic. These affected sometimes the face or neck only, at others the limbs and the whole body. The right extremities were as often affected as the left; those of both sides were not commonly affected at the same time. He was constantly losing strength after the 19th and on the 22d he underwent his last change without a struggle.

The diseased parts were examined by Dr. Warren on the following afternoon. The external parietes of the abscess being raised, the cavity was found to correspond in extent with its external appearance. These parietes consisted of the integuments and fascia only; the posterior surface of the abscess was formed by muscular substance. The whole surface was perfectly denuded of pus. In the posterior parietes were found several de-

pressions which had been noticed also by means of the probe during life. Each of these depressions was big enough to receive a small chesnut. At the lower part of the cavity the *crista illi* was found to be denuded of periosteum. From the cavity there ran two sinusses. One of these ran upwards and toward the spine and terminated at the junction of the second and third lumbar *vertebræ*, at which place an opening was found leading into the vertebral canal. The other led by a circuitous rout to another large cavity. This sinus or fistula passed through muscular substance only. The cavity into which it led may be distinguished as the internal chamber of the abscess. This was much larger than the external cavity or chamber, and was directly behind it. It was formed principally by the destruction of the *psoas* muscle. In its upper portion the muscle was quite gone and the posterior parietes were formed by a coating of coagulable lymph which seemed to be organized and by a remnant of the fascia of the muscle. In the lower part some remains of the muscle could be discovered. This cavity like the other had a sinus running toward the vertebral canal, but no opening could be discovered into it. The vertebral canal was laid open by removing the processes of the third lumbar *vertebræ*. It was then found that the bodies of the second and third lumbar *vertebræ* were denuded and rough in their posterior surfaces, i. e. on the surfaces which go to form the canal. This was the case for at least two inches, and probably would have been found to be the case to an extent still greater; but the bones were not sufficiently removed to decide this point. The corresponding portion of the *medulla spinalis* was also found diseased. On dividing the *theca* which incloses it there was found a yellowish white substance lying on the fibres of the *medulla* and within this sheath. The matter was evidently coagulable lymph just smeared over with pus. The *medulla* itself had marks of inflammation. The extent of these appearances could not be determined, but probably was not less than two inches.

Summary reflections on forming a new arrangement of the study, the instruction, and the practice of Medicine and Surgery in France ; by M. Nacquart.

[Journal de Medicine. Translated for the New-England Journal.]

At a time when every thing denotes that medicine and surgery are about experiencing changes in their organization, it becomes the duty of every one to submit to the public his reflections, as a mean of enlightening the power authorized to report on this subject.

A question of the first importance suggests itself to every mind. Ought medicine and surgery to be united or separate in their instruction and practice ?

Twenty years of a legal union between medicine and surgery, far from proving that these two professions can be confounded together, make the necessity of their separate practice more clearly evident. No one has seen during this period a single individual who has qualified himself with any success both as a physician and surgeon, and has acquired in the double capacity duplicate titles to reputation. On the contrary we have found, notwithstanding the law, that a separation has taken place.— Thus it has happened, from the year 1790 to the 11th of the Republic, the time during which the law has existed with regard to the present mode of admission to practice, every one has devoted himself to his peculiar employment of physic or surgery. So much for the practice.

If we now revert to the study of the art, we shall see that circumstances assume another appearance, or are at least considerably changed. The first elements, in fact, are the same ; and it is not till an advanced period of instruction, that one begins to perceive the need of making deeper research into one of the two branches in preference to the other.

Thus anatomy, physiology, general pathology, general therapeutics, materia medica, hygiene, legal medicine and some general notions on the subject of midwifery, are alike necessary to physicians and surgeons. The difference between the studies

of those who are called to exercise one branch in preference to another, does not become perceptible till after these first and indispensable acquisitions.

If a complete separation is effected there will no longer be enough of surgery in the instruction and practice of medicine, nor enough of medicine in the practice and instruction of surgery. On the contrary, if their legal connexion obtains, physicians will not be sufficiently well versed in medicine, nor surgeons in surgery.

This being admitted, I believe then, primarily, that the complete union and complete separation of medicine and surgery are alike improper, and would be equally prejudicial to the healing art. The capital point consists in managing between these two distinct branches of the same trunk, the circumstances which tend to the advancement of one and of the other. With this view, I shall glance cursorily at the study, instruction, and practice of the art of healing.

A radical defect in the studies among some of our faculty is the uncertainty in which young people are left to fluctuate. Almost all, having no idea of the order which it is necessary to preserve in their acquirements, attend too many courses, and upon subjects beyond their capacity. Hence superficial minds that know the names of every thing; hence, minds which are spoiled, which will not apprehend that the articles of our knowledge ought to be connected one with the other to form a well-arranged whole. Let a statute fix the order to be followed in the courses, and we shall in this explicit discipline of study, lay the true foundation for the limits to be established between medicine and surgery. I would venture to open the path by proposing the following order.

FIRST YEAR.—*Studies common to medicine and surgery*

Winter.—Anatomy and dissections; physiology and clinical surgery.

Summer.—Surgical pathology; botany; chymistry; and clinical surgery.

SECOND YEAR.—*Common studies.*

Winter.—Anatomy and physiology; course of operations and clinical surgery.

Summer.—Surgical pathology and therapeutics ; botany ; and clinical surgery.

THIRD YEAR.—*Common studies*.

Winter.—Pathological anatomy ; medical pathology and nosology ; course of midwifery ; clinical medicine.

Summer.—Course of hygiene, of semeiotica, of midwifery ; clinical midwifery ; comparative anatomy.

FOURTH YEAR.

Separate courses, according as the pupil wishes to take a doctorate in medicine or surgery. Separate titles.

MEDICINE.

Winter.—Medical pathology and therapeutics ; symptomatology ; clinical medicine by observation.

Summer.—Nosography, materia medica, legal medicine ; history of medicine, clinical history of medicine.

SURGERY.

Winter.—Surgical pathology and therapeutics ; course of midwifery and operations ; clinical operative surgery.

Summer.—Surgical nosography and materia medica ; course of midwifery and history of surgery ; legal medicine and clinical operations.

If the studies for the last year seem too much multiplied, this is because the period of four years is a little too restricted for the knowledge of such a variety of subjects ; and perhaps this table will suggest to the legislator the happy idea of *prolonging* it one year.

This plan of study demonstrates, I believe, that the three first years ought to be common. It shows also that this number of years may be the limit, not because the pupil has then acquired the whole knowledge of his profession, but enough perhaps, to be entrusted with a *subordinate practice*.

After having determined what belongs to the studies of the pupils, and before proceeding to the conferring of degrees, let us consider, for a moment, instruction as it relates to the professors.

The world endeavours, at this day, to depreciate the courses of the present faculty ; it even goes so far as to say that many

are incomplete, and others wanting; and it takes occasion from hence to make public some crying abuses and demand a reform. Without desiring to judge of the falsity, or at least exaggeration of these reproaches, let us try to go back to the first, so that, if it can be done, we may remedy the evil in its source.

The feeling of glory, the desire of reputation, self-love, even the call of duty, are without doubt powerful motives, but these are soon relaxed, if interest, the only constant impulse of the greatest number of men, is not kept in incessant operation.

The apathy which must necessarily succeed eventually to the most active and best directed zeal, might be remedied, if the professors could be interested not in the receipts, but in the manner of conducting their courses, and in their efforts to multiply and delight their hearers. An examination should be made by the professor, at least once a week, and according to the *table of inscriptions*, to urge the pupils to greater assiduity. This method, customary with the faculty of law, from time immemorial, would be happily introduced into our schools. At the end of each semi-anniversary of the school, the professors assembled, should select by secret balloting, the two professors who had reflected upon the faculty the most lustre, by the splendor and effect of their lectures. There should be given to one a gratuity of 1500 francs, to the other one of 1000 francs, to be raised from the *funds of inscriptions*.

Before quitting the subject of instruction, let us discuss one other question of great importance, which presents itself. Ought the professors to be appointed for life, or ought the courses to be delivered alternately by the members of a corporation of physicians. This second method was that adopted by the faculty of Paris, and seemed to possess few advantages. The office of professor is a separate duty, which requires an exclusive attention and great experience. If moreover, the professors are made a permanent body, there will at length grow among them a mutual spirit, an *esprit de corps*, without which there is neither emulation nor stability, nor agreement in opinion, nor security in the doctrines inculcated.

It is then demonstrated that it would be more advantageous to have a common school. Without this, we shall soon see discordance spring up in matters which appear least susceptible

of it. Thus there will be two or a thousand anatomical arrangements, two or a hundred philosophical theories, &c.

The examinations for admission, are at present a subject of a great number of objections, and certainly of some very obvious ones: these alone perhaps, are the cause of the multiplied invectives of which the present faculty are the object. Let us try to fix our notions as to a point so controverted.

Ought the examinations to be committed to the body of instruction as is practiced at present, or to the body of resident practitioners? or rather in fine, ought the two bodies to take an equally active part?

As to the second opinion, well as it has been supported by a professional brother, whose character I esteem in proportion as I regard the bond of friendship which connects me to him, I am far from willing to adopt it. Its adoption in fact would make the body of instruction a body of mercenary workmen who would receive no glory from their labours. And besides, as all the pupils of the body of instruction would not intend to practice in the city where they study, what pledge will be offered to cities at a distance, by a body purely practical, and the sphere of whose activity can never embrace a circle very extended.

On the other hand it is proper that a disinterested body should take an active part in the matriculations to guarantee the strictness of them, rather than to witness the sending forth of the candidates, all prepared, from the bosom of the faculty of instruction.

Here I am again compelled to depart from that order which the connection of ideas prescribes to me, for the purpose of establishing, before determining the mode of matriculation, what is to be understood by the practical body I have mentioned.

Every reader must have perceived that I speak often of a practical body, of which in fact, I have not yet established the existence nor the attributes; I have done this intentionally, that I might not anticipate what I shall have to say of a Royal College.

We have seen that the studies were to be common during three years, at the expiration of which, a licence might be conferred. This arrangement would terminate the courses of a certain number of pupils, who might then receive the titles of

Licentiates in Surgery, and might properly take the place of our self-styled *Officers of Health*. This title of Licentiate alone would discover the hierarchy, and announce to the publick that there are degrees of instruction among those who are charged with watching over their health. If the reader has followed with attention the order I have laid down for the three years of study, he may be convinced that the time is sufficient for an intelligent man to adapt himself to the employment he shall have to fill.

The licence in medicine, different from that in surgery, should not constitute a title for practising, and could never be considered more than an introduction to a doctorate either in medicine or surgery.

For attending to the conferring of *Licences in Surgery*, there should be added to the committee of the professors, an equal number of members of the practical body, in such a manner that the committee from the college should be composed of an equal number of physicians and surgeons. The constituents of the committee of the college should be the same for *Licentiates in Medicine*. As to the doctors, on the contrary, the committee should be exclusively composed of physicians for those who aspire to the doctorate in medicine; and of surgeons when it is the business to confer the doctorate in surgery.

The nature and number of the examinations will be determined by statutes, as well as what relates to the thesis for a doctorate.

I ought here to give the constitution of that practical body whose existence I have anticipated; but as I agree with very slight modification, in the opinions of my colleague Doctor Sédillot, I refer for the composition, statutes and principal attributes to what he has said of it in the preceding papers.

The Royal College thus established, it remains for me to state that which concerns its relations to the faculty of instruction, and to determine the mode in which it should admit candidates.

All physicians, surgeons and licentiates, and finally all officers of health, practising within a given circle, should be attached to this college, either as members, or as fellows, or as licentiates. Let us attempt to fix the meaning of these expressions.

The licentiates in surgery, who being received by the faculty in the manner I have mentioned, wish to practice within the limits of the college, should be obliged to make application to its general office to obtain their *patronage*. This office, receiving certificates of the morality of the individual, should decide if he can be examined. In case of the affirmative, the president fixing the day of examination, should invite the president of each order, to appoint three doctors, who should be charged with proceeding to examination. The report of this committee should be transmitted to the general office, composed of officers of the two orders who should decide.

Forms of farther ceremony, examinations more strict, and testimonies more numerous should be required for admission into the college. This admission should comprehend three classes of doctors in medicine and surgery: 1. Doctors of the faculty residing within the limits of the college; 2. those of other faculties of France; and 3d. those of foreign faculties.

The request for admission coming to the office of the college, a committee of inquiry should be taken from among the officers only of the two orders, who, at the session of the general office, should make their report upon the question, whether the candidate is entitled to examination. This report should be made after a period of two months for French physicians, and three for those of foreign faculties. If the candidate is admitted to offer his proofs, he is sent before the president of his own order, who appoints five members, who form a committee of examination, presided over by an officer of the office for the other order. The examination is made before the same order: each examiner has an half hour: the president speaking last. The committee decide, during the session, by black and white balls cast into a covered urn.

When the report is favourable, the candidate is sent before the president of the college, who announces that he is admitted to present his thesis. This thesis is written in French or Latin; but there are always two examiners who examine in Latin. The committee on the thesis is composed of six members appointed from the order to which the doctor belongs, presided over by the president of the opposite order. Each examiner has an half hour. This thesis is defended at a general session. The

candidates having retired, the president takes the vote on his admission, each member of the college taking part in the balloting. After the examination, if it is favorable, the doctor takes the oath of Hippocrates, and is installed a Fellow of the college. In case of his non-admission, the president declares the session risen.

I shall say nothing of a bachelor's degree, because I consider this grade as nearly useless, especially upon the terms of the statutes of the university, which require, from the date of January, 1815, that no one should be allowed to take any titles in the faculty, except Bachelors of Arts.

The professors are *ex officio*, members of the college, and participate its duties and honors. Their admission, if they were not members before, consists in a lecture which they deliver at a general session upon a subject which is given them by the office of their order, an hour before they take the chair. For this purpose, each member brings a question, and it is decided by lot.

When a doctor does not obtain an admission, a year must elapse before he can present himself again: two refusals amount to an absolute denial.

The fellows become members of the college after five years of fellowship, and ten years of doctorate.

The *foreign fellowship*, that which appertains to the doctors who do not reside within the limits of the college, consists in a single examination; but they receive only the title of fellows of the order to which they belong. They can however pass through all the degrees of fellowship. A foreign fellow is likewise obliged, whenever he establishes himself within the limits of the college, to present himself to defend his thesis.

I ought before finishing this sketch, to take up the subject of the present officers of health. This is a string difficult to touch. Shall the licentiates be put on a level with those who have given no testimonies of their knowledge? It appears to me that we must leave them to end with their title, at the same time, submitting them, to the statutes which regard the licentiates in surgery.

I have thus examined respectively the principal points which a weighty question, to which are attached important results, pre-

sents : but I have always expressed myself dubiously. To recapitulate, my fundamental opinion is, that it is necessary to ordain *one individual instructing body*, as well as one individual practical body, and to admit only some secondary divisions ; at the same time still preserving as many points of contract as possible.

Note. The professors of the French schools are not paid by students, but by the government. It should also be understood that some of the French professors are not practitioners of medicine and surgery.—ED. N. E. J.

[From the Edinburgh Med. and Surg. Journal.]

On the Relation subsisting between the Time of the Day, and various Functions of the Human Body ; and on the manner in which the Pulsations of the Heart and Arteries are affected by Muscular Exertion. By ROBERT KNOX, M.D. Edinburgh.

To the Editor of the Edinburgh Medical and Surgical Journal.

SIR,

I HAVE ventured to submit to you for your approbation some observations and experiments on a subject, which, for some time, has occupied a considerable share of my attention. The matter itself will, perhaps, at first sight, appear to many rather curious, than interesting or useful. But it ought to be remembered that observations, in themselves apparently of little direct importance, have, in the progress of time, been found much to benefit science.

I may here briefly mention the circumstances which first induced me to investigate opinions, to the correctness of which so many had unlimitedly subscribed. Annoyed like others with the interminable disputes concerning the *stimulant* and *sedative* powers of foxglove, I resolved to make a few experiments on that celebrated drug. A variety of perplexing circumstances soon convinced me of the necessity there was, correctly to ascertain the various conditions of the healthy pulse, particularly as regarding muscular exertion, diet, &c. This knowledge, however, I found was not to be attained in a short time, nor without

considerable labour. Contrary to my expectations, that which I deemed of minor importance, or merely preparatory to other researches, became a valuable subject of inquiry.

Whilst conducting the experiments about to be related, I have often almost despaired of reducing to general laws the endless variety which the functions of the animal economy present to every observer. But remarking, amidst this seemingly inextricable confusion, a certain degree of regularity, I was induced and encouraged to prosecute the inquiry, convinced that we ought never to disregard those signs of order which nature manifests, whether they regard animate or inanimate beings.

It is almost needless for me to observe, that every precaution has been taken to avoid error. If, throughout the essay, this desirable object be attained, it is principally attributable to the assistance of my friend Dr. James Thompson, continued with unremitting zeal and friendship, during a course of experiments both tedious and delicate.*

SECTION I.

1st. When we recollect that it is during the course of the day that all those circumstances, which tend to accelerate the pulse, are generally combined and present, the proposition that the morning pulse of a person enjoying health is quicker than the evening one, must seem almost a paradox ; at all events, so hostile to what appears probable or plausible, that the clearest evidence of its truth must be brought forward before we could expect to gain a single proselyte.

In detailing the results of my observations and experiments on this subject, a certain degree of licence is necessarily made use of, which, however, does not at all affect the conclusions I have drawn. In these experiments it is not proposed to submit the functions of the body to rigorous calculation. In physiology, as well as in medicine, a near approximation to the truth is the

* The subject of the experiments is about 22 years of age, of a moderate height, and somewhat muscular ; his constitution may be called irritable,—by which is meant only, that it is easily excited by stimulants of almost every kind. . He has not laboured under any serious indisposition for a great number of years, nor is he conscious of any hereditary or acquired tendency to disease in any organ.

only rational end we can possibly propose. Numbers are used, both because they render our ideas more precise, and cause to be distinctly perceived the limits to which we should wish to extend these doctrines. The variation in different individuals must necessarily be immense;—for that the candid will make proper allowance.

Dr. Cullen, (whose name is not merely celebrated, but venerated in medical science,) talked of a natural acceleration of the pulse, which, according to him, happens twice a day, and resembles, in a distant manner, a febrile paroxysm. Now, amidst many hundred experiments, performed under a great variety of circumstances, I could never perceive any such phenomenon. The time of the day at which the first spontaneous acceleration is supposed to happen, is noon. My own pulse never shewed any symptoms of such acceleration, but, on the contrary, always diminished in velocity. Thus,

Ex.	11, A. M.	Pulse 72
	12, noon,	71
	1, P. M.	65
	Half past 1, P. M.	64

The other paroxysm, according to the same author, occurs in the afternoon, and that, too, totally independent of any excitement by food, &c. This opinion is equally erroneous with the former.

Ex.	3, P. M. Pulse 68
	4, 66
	5, 64
	6, 62

Ex. Half past 3, P. M. Pulse 67	Half past 6, Pulse 62
Half past 4, P. M. 67	7, P. M. 62
5, P. M. 64	Half past 7, 60
Half past 5, 63	8, P. M. 58
6, P. M. 63	

These experiments are in direct opposition to the statements of Cullen; yet, whoever carefully peruses that author's works, more anxious to discover truth, than, by partial views and misrepresentations, to detect contradictions, will be convinced that Cullen's notions are partly just, and partly erroneous;—that

delicate and accurate observation is blended throughout with supposition, assertion, and hypothesis.

2d, This quickness of the arterial pulsations, observable in the morning, is at present very generally disbelieved ; yet nothing can be more easy than to ascertain the fact experimentally. Perhaps the following instances, taken at random from a great number of others, may go far to settle the point. In the following table the pulse was reckoned in the sitting posture, (this is always to be understood, unless the contrary be expressed) before breakfast, and a short time after rising from bed ; and, in the evening, after a light supper, and generally some spirituous liquor, taken, however, in small quantity, and much diluted. The power of alcohol in raising the pulse is well known. The period is the summer time.

TABLE.

About 9, A. M.		About 12, P. M.	
68	68	63	63
65	74	70	70
68	70	62	66
68	69	61	62
67	65	59	63
62	70	63	72
70	71	62	72
70	68	61	72
64	76	66	62

The average result of these
is 68.5.

The average is 64.38.

To render the result of this table the more striking, it is necessary for me to point out a few circumstances, to which considerable attention ought to be paid. In the morning, the pulse was reckoned immediately almost on rising from bed, and always before food of any kind was taken. Every circumstance, therefore, conspired to reduce the pulse. On the other hand, the evening pulse was reckoned after the many exertions undergone during a long day,—after exercise of mind and body, after food and drink ; the pulse is, notwithstanding, considerably less frequent than in the morning, when every thing favourable to a rapid state of the circulation was carefully guarded against. But

the pulse is not only in general quicker in the morning than in the evening ; it is also more excitable ; *i. e.* the same quantity of food or drink, the same degree of exercise. shall be found to exalt the pulse more in the morning than at any other period of the day or night ; and the capability of being excited may, generally speaking, be said to diminish from a very early hour until the same hour next morning. The *data* on which this assertion rests are pretty numerous, though not so complete as I could have wished them to be. To accomplish this, would have required a complete change of my mode of life, which I found at the time impracticable.

TABLE,

Shewing the different states of the pulse, as reckoned at three different periods of the day, viz. after breakfast, dinner, and supper. The experiment was made during summer.

After breakfast, always before 10, A. M.	After dinner, before 5, P. M.	Evening between 10 and 12, P. M. generally near 12.
Pulse 66	Pulse 68	Pulse 63
68	71	70
69	73	62
66	69	61
69	71	59
69	74	62
70	76	65
64	66	63
80	80	68
73	80	70
75	76	76
80	76	68
74	84	60
74	72	63
78	72	59
75	72	62
76	80	66
73	76	62
Average 72.	Average 74.22, &c.	Average 64.388, &c.

The conclusions to be drawn from this table are obvious. To render them still more so, I may observe, that the breakfast is generally a moderate one, consisting of coffee, bread, and eggs ; the dinner always of animal food principally, and a small quantity of vegetables ; to which was often added a little spirits or porter ;

and, notwithstanding the vast difference between the stimulating powers of these two meals, the morning pulse is inferior to the one after dinner by only two beats ; the difference would have been ten or fifteen, had the case been reversed, at least I am induced to think so from some experiments which I afterwards instituted directly to ascertain the point. In the evening the pulse was reckoned after supper, light, indeed, but certainly equal to the breakfast in stimulant power, and in some measure more so, because spirituous liquors very generally supplied the place of coffee. Notwithstanding this, the evening pulse is found to be, on an average, nearly eight beats lower than the morning one ; a difference by no means inconsiderable, and sufficiently warranting the conclusions I have drawn from it.

The following table was drawn up, in order to ascertain the effects which moderate exercise in the morning would produce on the pulse, reckoned, however, in such a manner as not to be immediately affected by it.

TABLE.

A walk of three miles before breakfast. Pulse after breakfast.	Pulse after dinner, as usual.	Pulse after supper, as usual.
74	76	62
81	78	62
80	75	62
83	78	64
80	75	66
78	74	64
Average 79.33.	Average 76.	Average 63.3, &c.

3d. My experiments have not yet enabled me to ascertain, with precision, the hour when the pulse begins not only to be actually more rapid, but also to acquire a greater capability for action, manifested by the exhibition of any stimulant. This, with myself, perhaps takes place about 3, P. M. (A. M. ?) ; but there is every reason to believe that the time varies with the individual, the season, climate, and perhaps, though this for many reasons is improbable, with the mode of life.

4th. This increased capability for action, occurring regularly in the morning, is even of greater importance than the *actual state* of the circulation ; the former may be made the subject of very delicate experiments ; the latter we know to be exposed to

a thousand variations, from causes which have been in part developed. While experimenting on this subject, there occurred to me a case, altogether of so interesting a nature, that I cannot refrain from giving it in detail. It affords a remarkable proof of the truth of the doctrines brought forward in this essay; at the same time, independent of this consideration, from the rarity of its occurrence, it appears to be worthy of record.

M. C. aged 4.—The account we received from the parents of this child was, that she continued in good health until about six months after birth, when a blueness of the surface was remarked, particularly on any exertion, and accompanied with perpetual difficulty of breathing. In this state she continued to grow, and became remarkably tall of her age. She was observed, however, to get daily worse; that is, the paroxysms of threatened suffocation became more frequent, during which the whole surface of her body appeared almost black. A strong beating was constantly to be felt in the region of the heart, and she was sometimes convulsed; muscular debility great. At her death she measured three feet four inches. The body continued warm for five hours after death.

Dissection.

1. *External appearances.* The countenance, feet, and body, were not all discoloured; the arms and fingers retained their usual dark colour.

2. *Thorax.* The lungs seemed sound, though dark-coloured; heart perhaps larger than usual; *foramen ovale* pervious, and pretty large. The *aorta* arose from both ventricles in such a manner, that the ventricles communicated with each other, and with the cavity of the vessel, which was much enlarged; its *vasa vasorum* distended with red blood. From the right ventricle there arose a pulmonary artery, very small in its diameter, (perhaps the size of a small goose quill) and feeble in its coats; it possessed all the characters of the artery, such as its valves and division into two branches. Not the smallest vestige of a *ductus arteriosus*; it seemed never to have existed. The passage from the left ventricle into the artery, common to both, was more direct than that from the right. Every where the arteries were full of dark blood, not coagulated.

3. The abdominal viscera were of a very dark colour. The head was not examined.

Before leaving the house, the father of the child related to us a circumstance to which we all paid particular attention. The child, he informed us had always been very fretful and peevish, (perhaps from indulgence,) and apt to have frightful paroxysms when spoken to harshly; but these happened much more frequently in the morning; indeed he observed that she was always ill in the early part of the day; so much so, that the smallest exertion, an angry word, or even a cup of tea, would instantly bring on a paroxysm, each time threatening destruction. This tendency to these fits decreased from morning, till about 5, P. M. from which time she generally continued well till bed-time. The father detailed this with great minuteness, and seemed to wish for an explanation.

It will be easy to anticipate to what cause I would ascribe this increase of disorder in the circulation, during the forenoon. So disproportionate was the pulmonary artery to the aorta, it was with difficulty that life could be carried on; but, in the morning, when the susceptibility of the arterial system was greater, the inequality must also have been increased to such a degree as almost to have destroyed life. I may also remark that she died about 9, A. M.

5. To be convinced that an opinion, very different from that now brought forward, is the one more generally received, we have only to turn to the writings of a few celebrated physiologists. Thus, for example, in the "Physiologie Positive" of Fodéré a work of merit, we find the following remarkable passage: "Relativement à la différence du jour et de la nuit, on remarque que le pouls de l'homme adulte bat de 60 à 65 fois par minute, au commencement du jour, et qu'il va continuellement en augmentant jusqu'à battre 80 fois dans le même temps, chez les plus excitables, sur la fin de la journée; dans la nuit, les pulsations diminuent de nouveau, jusqu'au matin, où elles se trouvent revenues insensiblement au nombre de 60 à 65." * In order to have an approximation to the truth, we have only to reverse the above statement. If we regard as accidental cir-

* Essai de Physiologie Positive, Tom. I. p. 190.

cumstances the accelerations of the pulse, occasioned at various times by our diet, and that, too, according to the caprice of the individual, the pulse shall be found gradually to diminish in velocity from an early hour until midnight, and generally later. This difference I have found to be great in winter, but less, though still existing, in summer, as the above experiments, performed during that period, sufficiently prove; and from this I am inclined to believe, that heat has no inconsiderable share in the production of the phenomenon, though totally inadequate solely to produce it. This gradual excitation in the number of the pulsations Fodéré conceives to be owing to the combined effects of exercise, of the action of the internal and external senses, of light, heat, purer air, &c. Violent exercise towards evening will certainly produce a considerable excitation of the pulse, but less than what takes place in the morning, in consequence of the same degree of exercise; neither will any degree of heat, nor quantity of food, raise the pulse in the evening to the height at which it is in the morning, almost without any such excitants, provided they be not used in an immoderate degree.* Thus, after fasting till 8 P. M. I found my pulse to be 58; at 9 P. M. after eating a moderate dinner, pulse 58.

The common mode of experimenting with unequal quantities of food, taken at various hours of the day and night, was evidently insufficient to establish the principle in its full extent. I endeavoured, accordingly, to submit to a particular regimen, and examine the state of the pulse under the influence of a diet always similar at every hour of the day. This decisive experiment could not be pushed any length; so difficult a matter did I find it to break through, at once, those habits which a great number of years had firmly established.

6. "All these things (continues Fodéré) singularly facilitate the return of the venous blood towards the heart; and this is one of the causes of the evening paroxysm which takes place in all fevers." But, having denied that any such gradual increase of the pulse exists, we need scarcely stop to say, that this

* In experimenting on this point, care must be taken that the acceleration of the pulse, occasioned by indigestion, be not confounded with the natural healthy pulse, produced by the simple stimulation of the food.

cannot be one of the causes of the evening paroxysms in fever.

This opinion appears to be borrowed from the celebrated Cullen. That author, however, increased the facility of explanation, by describing two exacerbations or augmentations of the pulse; one about mid-day, the other towards evening. This explains, in his opinion, the occurrence of the double paroxysm in hectic fever.* The whole is a pure *hypothesis*, which seems partly to have arisen from supposing that the pulse was governed by the same laws in health and disease. So far as my observations go, the order of nature in disease is entirely reversed, and the observations of Cullen, Fodéré, and others, are applicable only to the unhealthy. That this acceleration of the pulse (which is really an aberration from the regular laws of nature) actually happens in fever, the testimony of Cullen, generally so accurate in the observance of disease, will sufficiently establish; and that this universally takes place in phthisis, we have, unfortunately, too many opportunities to verify.† It was from the sinking of the pulse towards evening that I ventured, independent of other circumstances, to prognosticate favourably in the case of a child labouring under typhus fever. It was this which induced me to hope that some of the functions had begun to resume their natural order, and that recovery was a probable event. Nor was I deceived; by proper attention the patient from that day rapidly amended.

7. The physiologists who invented the various diurnal accelerations of the pulse, one, two, or more, just as suited their fancy or necessity, will perhaps find little difficulty in explaining the gradual diminution of the pulse, should the phenomenon appear to them to be correctly stated. With me, I confess, the cause is yet excessively obscure, because I have not found it connected with any circumstance, to the influence of which I might ascribe it. Experiment showed me that no previous exhaustion from labour, excess in food, drink, &c. rendered the diurnal diminution of the pulsations more evident than usual; the want of food, perhaps, hastens and increases it, but certainly does not prevent

* First Lines of the Practice of Physick, Vol. I. c. 862.

† Beddoes' Essay on Consumption, p. 252.

or retard it. Neither is sleep the cause of the restoration of the susceptibilities and velocity of the morning pulse, since the negation of that does not at all destroy the *excitability** of the sanguiferous system, as manifested by the application of the accustomed stimulants.

August 30th 1813, the day being moderately warm, I walked, between 1 and 11 P. M. a distance of nearly 40 miles. Not having much appetite, retired to rest about 1 A. M. after drinking a little coffee, but slept none, perhaps owing to over-fatigue. Next morning (31st) about 7, my pulse was 80 and rather feeble; after breakfast, before which I took a small glassful of spirits, my pulse rose to 104. I was not feverish, and performed a journey that day of 27 miles, at a tolerable pace.

To what, then are we to attribute this daily diminution of velocity in the functions of the sanguiferous system? Its existence as a law of the sanguiferous system, has been demonstrated experimentally; and I shall endeavour to shew, that a similar revolution daily takes place in several other functions of the human frame. To this conclusion Dr. Cullen arrived, merely from observing the daily returns of sleep and watching, of appetites and excretions, and the changes which regularly occur in the state of the pulse. Of these changes he had, however, no clear ideas. When he proceeds to combine this diurnal revolution with the phenomena of fever, he unquestionably offers a conjecture, extremely probable, ingenious, and perhaps original; but unfortunately there results from this fine idea, nothing but conjecture and hypothesis, attributable principally to an incorrectness in the observance of the phenomena.

8. It required few experiments to convince me, that animal food raised the pulse much more than vegetable; the excitation of the pulse by wine is still greater, and that from spirituous liquors greatest of all. By these circumstances, but more especially by diet, the regularity in the diurnal revolution in the pulse, is, as might have been anticipated, much disturbed. But it was impossible to perform these experiments without remarking, that something similar happened to various other functions. Thus, beyond all doubt, our perceptions in the early

* I use this word merely to avoid circumlocution.

part of the day are clearer, our minds more acute, our whole intelligence more active. The functions of the stomach seem also much stronger at this time than towards evening. Feverish, restless nights, are the invariable attendants on late meals, which injure in the *ratio* of their quantity.

I have repeatedly remarked, that digestion went no more easily in the morning than in the evening. Three or four times have I been induced (sometimes compelled,) whilst following some favourite sport in the country, to defer the taking food until evening; a greater or less degree of fever and restlessness, in proportion to the quantity of food taken, has uniformly followed such indulgence.

It was long with me a problem difficult of solution, why digestion should go on laboriously during the evening, when the actions of the muscular system were almost entirely suspended; more especially when I recollected, that the opinions of most, perhaps all physiologists, led us to conclude, that rest greatly favoured the digestion of our food. The objection, that during sleep, in which state the repose of the body is complete, digestion, nevertheless, is generally ill performed, seemed at first insurmountable; and it is not a little remarkable, that those physiologists who have so repeatedly stated the fact, have as constantly failed to note the objection. On observing that practical men expressly stated the necessity of rest for the right performance of the function of digestion, and experiencing daily the truth of the observation, I was convinced that the above objection was rather inexplicable than hostile to the opinions of physiologists, which I then, and still do consider as strictly correct. But this phenomenon is no longer difficult of explanation, if a daily revolution in the functions of the stomach be demonstrated by experiments, or even rendered probable by analogy.

On this subject, the opinion of those, whose profession it is to train men to the performance of great muscular feats, when they speak the truth, is of much more consequence than that of any medical man. Experience has taught them, that the evening is not a proper time for the digestion of the food; and accordingly we never find any substantial meal taken by their pupils after 5 P. M.; indeed they lay it down as a rule, that on

going to bed, the stomach should have as little to do as possible. Thus it is recommended* to sup about 9 o'clock on a chicken, or some food that is nourishing, not gross. In another place†, you must retire early to rest, on a supper of runnet-milk, or milk-pottage. Again‡, two meals a-day, viz. at 8 A. M. and 5 P. M. But these hours are rather later than the ones laid down by Jackson, who says,§ "they breakfast upon meat about 8 o'clock, and dine at 2. Suppers are not recommended, but they may take a biscuit and a little cold water about 8 o'clock, (I never heard of a more moderate supper,) two hours before they go to bed."

The object kept in view during the training, is to enable the human frame to acquire the utmost degree of vigour consistent with health. To accomplish this, they employ the organs at the time when they ought to be employed, that is, during the early part of the day. "The exercise is always begun early in the morning, in summer at five ; in winter at half-past six, or as soon as it is light. We prefer rising early in the morning, indeed it is indispensable."

Strictly speaking, this increase in the functions of the body, may be more properly called an augmentation and diurnal revolution in the functions of the nervous system. But this is too indefinite a term ; no two individuals attaching precisely the same meaning to it ; and we shall therefore consider the above facts, brought forward by Mr. Jackson, as proofs of an increase in the powers of the muscular system, without offering any conjecture on what that peculiarly depends ; whether it be connected with increased energy of the brain, or be totally independent of it.

I shall close this part with a single additional observation. It is this : The regular decrease in the powers of the stomach is not dependent on any previous exertion of that organ, for I have found that a dinner taken at a late hour, with or without previous exhaustion, was always digested painfully and laboriously, with feverish nights, distressing dreams, and instead of refreshment, further exhaustion. This arises not from the food stimu-

* Sinclair's Code of Health, Vol. II. p. 163.

† Ibid p. 112

‡ Ibid p. 104.

§ Ibid p. 94.

lating at that time the system more powerfully than in the morning. If we may judge from the pulse, it stimulates the body much less at midnight than at nine in the morning ; but it arises from this, that the powers of the stomach are more languid ; it does not digest the food taken into it ; and should a feverish night follow, it is neither wonderful nor inexplicable. Hence we see the propriety of no function being much employed during the evening ; not because it will greatly excite the pulse, and so produce fever (ridiculous idea ! the excitation of pulse, does not produce or constitute fever ;) on the contrary, the stimulation is actually less, it is almost as nothing, so far as regards the pulse ; but the phenomenon is occasioned by this, that all the organs are less powerful, less capable of exertion ; in short less able to perform their functions, or undergo fatigue. A remark made by Cullen, also illustrates in some degree the doctrine I have brought forward. " It is indeed to be observed, that in almost every person the taking of food occasions some degree of fever ; but I am persuaded this would not appear so considerable in a hectick, were it not that an exacerbation of fever is present from another cause ; and accordingly the taking of food in the morning has hardly any sensible effect." Here we see what so seldom happens, all the facts throwing light on the doctrine, and it on them ; for although the morning be the time when the action of food over the pulse is greatest, yet is there no febrile state excited. On the contrary, in the evening, as Cullen has remarked, a febrile paroxysm occurs in hectick, independent of food, aggravated perhaps by its presence, but whose real cause has totally escaped him.

9. Nor does this law seem confined to the functions of the brain, stomach, muscular, and arterial systems,—it extends, if I mistake not, to that of the lungs. Dr. Prout found, " that the quantity of carbonic acid gas, formed during respiration, is not uniformly the same during the 24 hours, but is always greater at one and the same part of the day than at any other, that is to say its *maximum* occurs between 10, A. M. and 2, P. M., or generally between 11, A. M. and 1, P. M. ; and its *minimum* commences about half-past 8, P. M., and continues nearly uniform till about half-past 3, A. M."* The same gentleman ob-

* Annals of Philosophy, V. II. p. 330.

serves, that the quantity of carbonic acid given off during respiration, bears no proportion to the numerical state of the pulse; in fact he imagines that most carbonic acid is given out when the pulse is least frequent. My own experiments undoubtedly disprove this idea. The greatest quantity of acid, according to Dr. Prout, was given off during the forenoon, when the pulse is, in general, higher, and always more easily excited by any exertion; we may almost say, that the capabilities of the arterial system are at that time greater; and the importance of this remark, as it regards *secretion*, must be obvious. Besides, from what I can judge of the tables given by Dr. Prout, they refer principally to the afternoon and evening, unless some of the tables be wrong marked. Notwithstanding this, I am much inclined to agree with him in this, that the quantity of carbonic acid given off during respiration, is not particularly connected with, at all events not dependent on, the state of the circulation. His experiments on the state of the respiratory organs after exercise—after the taking of spirituous liquors—during a mercurial course; *—in short, after every thing which could excite the circulation, show this in a decided manner. These experiments, however, require repetition. Many of them are too scanty to enable us to draw any certain conclusion from them, whilst others are contrary to all analogy.

The opinions contained in the excellent essay of Dr. Prout, do not seem to invalidate the conclusions which I have ventured to draw from my experiments: they amount to this—that all the functions, or at least many of them, are more vigorous in the morning than in the evening; that their capability for action is certainly greater; and that this increase in the functions commences at a much earlier hour than is generally imagined.

Were it lawful for me to speculate, in this experimental age, I would venture to support an opinion, at present, I allow, somewhat antiquated, and very *unfashionable*, that early rising may be conducive to long life, as it most certainly is to the perfect enjoyment of all our faculties. It was from repeated violations of all these dietetic maxims that I first perceived their impor-

*Dissertatio de Copia Acidi Carbonici, &c. Andrea Fyfe auctore. Edin. 1814.

tance ; perhaps by a similar experience alone can others be convinced of their value.

Before concluding this section, it is my duty to observe, that, on mentioning the results of some of these experiments to a medical friend, he assured me that experiments, performed by him about ten years ago, led to conclusions which were, in his opinion, extremely similar to mine. This circumstance, he observed, was very satisfactory to him, as my experiments had been performed, and my conclusions drawn, without any communication of ideas : it will be equally so to me, if I find the results exactly to correspond ;—results of experiments performed by individuals so opposite in habits, temperament, and opinions.

SECTION II.

IN this section, we propose considering the effects of muscular motion on the pulsations of the heart and arteries. In what manner these pulsations are augmented in number, vigour, fullness, &c. by exercise, or, to speak more generally and correctly, by muscular motion, it is perhaps impossible, in the present state of our knowledge, to say. It seems however probable, that farther research may shortly lead to notions more precise than the ones we at present possess. Our concern is with the fact itself ; viz. that, by muscular action, the pulsations of the heart and arteries are augmented in power, velocity, &c. This fact, apparently so unproductive, and, by reason of its perpetual occurrence, so little apt to excite attention, shall yet, on examination, be found to throw some light on the physiology of the human body, and may perhaps assist in exonerating it from a charge so lavishly and inconsiderately bestowed,—that it is a science destitute of fixed principles ; or, at least, that a knowledge of the laws by which the animal economy is regulated, is, in a great measure, placed beyond the sphere of human intellect.

At all times it must have been observed, that muscular exertion, almost of any kind, but more especially violent exercise, increased greatly the powers of the heart and arterial system ; but that this extended even to the slightest muscular motion, such, for example, as is made use of during a change of posture, does not appear to have been suspected, or if so, its importance has been greatly overlooked. We may reduce the section to the following heads :

1^{mo}, The most powerful stimulant which can be applied, in order to increase the action of the heart, is exercise. Walking at the rate of four miles an hour, requires at least a pulse equal to 132 *per* minute; and the time of the day, and the continuance of the exertion, less affect the rate of pulsation than one would *a priori* imagine. When I say, that walking at such a rate requires a certain increase in the arterial pulsations, I do not mean to assert, that an equal increase must necessarily occur in every individual. These numbers are added only to render the subject more definite; in short, as a single example,—as a proof that the increase is great, even in the strong and healthy. We shall immediately see how very differently the debilitated are affected. This high excitement is not followed by proportional exhaustion, in so far as regards the arterial system; a fact singular enough, since it is at variance with certain laws of the economy, supposed to rest on a secure foundation. Other organs certainly follow a different mode, and exhibit, after an increase in their functions, signs of exhaustion or weakened energy. Such a law seems to hold with regard to the nervous system, in particular with the digestive organs and the respiratory.*

2^{do}, No stimulant which I have hitherto tried, has excited the pulse so much even as moderate exercise.

3^{tio}, Various observations have rendered it probable, that the increase in the number of the arterial pulsations accompanying muscular motion, is greatly influenced by the debility or weakness of the individual. Were it allowable to apply the rigorous language of calculation to a science which cannot be called *exact*, we would say that such increase is in the direct *ratio* of that debility. Hence, in fever, the slightest change of posture shall often produce an incredible velocity of pulse. Persons who have suffered much from loss of blood, or by chronic complaints, cannot bear the erect posture for any length of time; and hence, in the debilitated, who, it is well known, are very subject to faintings, the slightest muscular motion, by inducing or necessitating a rapid motion of the blood, (in them too rapid,) shall give rise to that distressing accident.

As exercise increases, so other stimulants diminish the frequency of the pulse in the debilitated, at least generally. But

* Annals of Philosophy for November, 1813, page 328.

as there may be various kinds of *debility*, in each of which the pulse may be differently affected by exercise, and as this increase of the pulse, when it does take place, is often accompanied with irregularity, a very extensive series of experiments is required, before we can implicitly agree with the above rule. On this latter principle, even in its present state, we may explain, I think, satisfactorily, many of the supposed stimulant effects of fox-glove, which drug debilitates, directly and greatly, most *systems* of the animal economy.

4to, The time of the day has a very considerable effect on the augmentation of the arterial pulsations by moderate exercise. As this relation has already been considered at some length, I shall here confine myself to the statement of a few general results. During the morning, the mere change of posture from the horizontal to the erect, shall increase the pulse by about 15 or 20 beats. At mid-day, this increase shall be 10; and, in the evening, 4 or 6. The effects produced by the sitting posture, assumed after the horizontal, are not half so considerable as those occasioned by the erect posture. The above is the manner in which the arterial pulsations are affected by posture, at different periods of the day; and though the results here stated may be greatly magnified in some, and equally diminished in others, it may, I think, be laid down as a general rule, that similar laws constantly regulate the healthy pulse.

From the above observation, we readily perceive, of how little consequence the details of physicians are, regarding the diseased pulse. If the slightest change of posture can in an instant excite the pulse by 50 or 60 beats, how easily may the medical man deceive himself and others! how often without a previous knowledge of these facts, may drugs seem to benefit the sick, when they are inert, or actually pernicious.

5to, The increase of the pulsations occasioned by change of posture, may shortly prove a valuable *asthenometer*. There are others, but they do not seem so certainly to indicate debility as the above. Some of them, indeed, are more calculated to detect disease than simple debility. These *asthenometers* are* the hot-bath, the cold-bath, or cold air, also the non-excitation of

* Beddoes's Hygeia.

the pulse by stimulants, supposed to happen in those habituated to spirituous liquors. Some may allege, and perhaps with justice, that this shall be found to indicate rather a state of disease than debility. This condition of the arterial, or perhaps nervous system, which renders the pulse non-excitabile by stimulants, is supposed to arise from other causes besides the abuse of spirituous liquors. “Une* observation très remarquable que j’ai eu occasion de faire, c’est que, lorsque la sensibilité a été émoussée par une affection chronique, les opiacées finissent par n’avoir plus de prise sur l’économie animale.” I have seen one case which favoured somewhat the above opinion,—the case of a young man, who, without doubt, laboured under hereditary predisposition to consumption. His pulse, on one occasion, I found to be not at all affected by a very great quantity of spirituous liquors. The opinion remains to be proved or refuted by additional observation. Indeed, as it is customary with those labouring under chronic complaints to resort to the use of narcotics, (this practice had not been adopted in the case just mentioned) it is not to be wondered at that this class of drugs should at last cease to produce their wonted effects.

Somewhat connected with this subject is the detection of commencing disease in the lungs, or pulmonic debility. This, according to Beddoes,† is indicated by a continued high pulse. “When consumption is advancing, it will be more frequent than natural, and, in general, much more frequent towards the close of day.” The whole subject is novel, and deserves attention.

As my only wish in prosecuting these experiments has been to correct a few notions regarding the physiology of the human body, and to advance that estimable science, I shall feel gratified with an examination of my experiments, whether that lead to a refutation or to a confirmation of the opinions maintained throughout this essay.

* Nouveaux Elémens de Therapeut. et de Mat. Med. par Alibert, Tom. II. 506.

† Essay on Consumption, p. 252.

[From the Edinburgh Med. and Surg. Journal.]

Pathological Researches. Essay I. On Malformations of the Human Heart: Illustrated by numerous Cases, and five Plates, containing fourteen Figures; and preceded by some Observations on the method of improving the Diagnostic Part of Medicine. By J. R. FARRE, M. D. 8vo. pp. 46. Longman and Co. 1814.

DR. FARRE is indefatigable in his pursuit of morbid anatomy, and has commenced, by the publication of this Essay, another series of papers, which is upon a much less expensive scale, and is not intended to interfere with his elegant and interesting work on the diseases of the liver, as we learn from the following passage.

“Convinced of the utility of this labour, the author is desirous of adding to the common stock, the observations which he has been enabled to make. Before he undertakes to give those which have presented themselves to him on all the internal organs, he wishes to be permitted to communicate, in particular, what respects the heart, the alimentary canal, and the liver, in separate papers, carried on at the same time, for the convenience of referring to signs and morbid appearances, which have a relation to each other. The first number on the liver has already been published, and the second will shortly appear, the plates for it being finished. Instead of publishing the Diseases of the Heart in a series of numbers, it is proposed to give them in distinct essays. He pledges himself to complete what he has undertaken, as far as his health will permit, or the willingness of the medical public to bear a just proportion of the expence of so considerable an undertaking will justify him in doing; for, in performing his professional duties, he must not forget that he has others of a higher nature to fulfil.” p. ix.

We trust that this just appeal to the profession will be met with equal justice; for, in that case, we doubt not that we shall be put in possession of the most complete series of the organic changes, which disease produces in the human body, that has

ever been accomplished, arranged and illustrated in a manner the best calculated to render it a source of sound instruction. For we are persuaded, that no practitioner has so assiduously pursued the investigation of morbid anatomy with so clear an object, *i. e.* for the sole purpose of connecting morbid changes with symptoms, as Dr. Farre, or has obtained a more complete collection of illustrations of these symptoms. We have already, indeed, expressed our opinion, when examining his first essay on the liver, that some modern pathologists are much too sanguine in their expectations of the additional pathological information to be derived from such inquiries: but it is certain, that no practitioner can be too industrious in multiplying his observations, whether of symptoms, or of the seats, causes, and effects, of the maladies which they indicate.

This essay, which contains a statement of, or a reference to, "nearly all the cases of malformation that have been published," will be followed by a second, which will treat of Pericarditis and Carditis, and by a third, in which Chronic Carditis will be the subject of illustration.

In what he calls an advertisement, Dr. Farre has candidly stated the difficulties which exist in the way of improving the diagnosis of diseases, and the actual imperfection which is observed in that particular point, even in the opinions of the ablest physicians. This difficulty, he admits, arises from the want of uniformity in the signs, which accompany morbid changes, and from the sympathies between distant organs, by which they are reciprocally disturbed by the disorders of each other: whence not only the diseases of the heart and the brain, the centers of the two great systems, the sanguiferous and the nervous, are often confounded; but still greater errors in diagnosis are committed, even by those who are accounted the best practitioners, in treating some of the diseases of the stomach, the liver, and the heart respectively, for each other. Hence, the author remarks, the physician is often obliged to be satisfied with a conjecture, respecting the seat and nature of the patient's disease. "Very commonly, in giving his opinion of the case, he will content himself with saying, that his patient labours under some disease of the liver—some disease of the heart—some disease of the brain, &c. This mode of expression is so familiar, that

every medical man continually hears it, nay, often uses it. But if words be the signs of ideas, how loose and imperfect must be the conceptions of diseases, which, by the very expression, are thus rudely blended and confounded ! What other than an empirical method of treatment can be founded on a diagnosis so purely conjectural !” *Advert* p. v.

If there be any severity in this remark, it consists in its truth. But we fear the very truth implies, not that physicians have, for two thousand years, omitted altogether the right mode of investigation, but that the subject is incapable of demonstration, or of any degree of evidence approaching to it ; that the signs and the maladies are not so invariably connected, as always to imply each others’ existence ; that, on the contrary, some signs that are prominent in one instance, are in others altogether absent, when even the anatomist cannot mark the difference of morbid change ; and that above all, the sympathies, to which the author has alluded, mixing with the realities, will at times delude the most cautious observer. All this, however, admitted, we allow to the author, that, every individual, who cultivates morbid anatomy, will obtain the best assistance in removing and overcoming these difficulties ; and that the following advantages, which he has pointed out, may be justly ascribed to this species of investigation.

“ 1st, That this method, preceded by clinical observation, affords the only means” (or at least the best) “ of distinguishing between diseases of function and diseases of structure ; and the most probable ground for the important opinion respecting the lapse of the former into the latter. 2dly, That it is capable of introducing great simplicity into the methodical arrangement of diseases, nosologists having exceedingly departed from nature in the multiplication of their species, and consequently of their genera.” And, “ 3dly, That by rejecting the artificial forms, and studying only the natural or true species, it enables us to follow, with greater precision, their respective stages, to separate the characteristic from the anomalous signs, which were noted in their histories, and, by thus establishing a more accurate diagnosis, to adapt the treatment not merely to the name, but to the form and stage of the disease.” (p. ix.)

The author begins his essay by a short Introduction, in which he exemplifies the value of morbid anatomy, in the information which it has afforded upon this very subject, malformation of the heart. So late as the year 1780, the case of a *blue* girl, in whom the usual symptoms had existed from birth, was described by a French physician, in the Hist. de la Soc. Roy. de Médecine, which he deemed a species of *jaundice*; and two similar instances were mentioned by the same author, as having been treated by another physician as cases of *scurvy*. Such mistakes could not now occur.

"Anatomical observation has now, indeed," says Dr. Farre, "enabled us to distinguish, with sufficient precision, the character which belongs to *ordinary* malformations of the heart. It has shewn us farther how to discriminate between it and an *approximation* to the same character, which occurs under a certain condition of the lungs, a point which we shall consider in its proper place. It has also taught us, that, in particular cases of malformed hearts, although black blood should not be so much in excess as to give the characteristic colour of the skin, the malformation may yet be discerned by the peculiarity of the respiration." (p. xiv.)

The study of the varieties of malformation, which take place in the human heart, enables us to discover "several degrees of imperfection in the function of that organ, by which our knowledge of the proper office of the lungs is improved;" it also contributes to throw some light upon the sources of animal temperature. A double heart is essential to the perfection of all warm-blooded animals, in which the whole mass of blood must pass through the lungs, before it is distributed to the other parts of the body. And Dr. Farre remarks, that all the imperfections of configuration, to which the structure of such an organ is liable, are productive only of two errors in its functions (varying in degree according to the extent of malformation); namely, 1. The mingling of black with red blood; and 2. impeding the circulation. This general fact Dr. Farre has made out, and adopts it as the ground of classification. He arranges, therefore, all the varieties of malformation that have been recorded, under two species, distinguished by these two imperfections of function. Possibly the following tabular view, which

the author has given as a table of contents, may afford the reader the most satisfactory idea of the varieties, which he has described and figured :

Species I. Malformations of the Heart, or of its Arteries, mingling *black* with *red* blood.

Sp. I. var. 1. Single Heart.

— I. — 1. *a.* Two Pulmonary branches from the Aorta.

— I. — 1. *b.* One Pulmonary branch from the Aorta.

— I. — 1. *c.* Heart transposed. The Aorta and Pulmonary Artery branching from a common trunk.

— I. — 2. Imperfect Double Heart.

— I. — 2. *a.* Unclosed Foramen Ovale.

— I. — 2. *b.* Dilated Foramen Ovale, or imperfect Septum Auricularum.

— I. — 2. *c.* Dilated Foramen Ovale, with an open Ductus Arteriosus.

— I. — 2. *d.* Ostium Arteriæ Pulmonalis communicating with both Ventricles.

Sp. I. var. 2. e. Dilated Foramen Ovale, and contracted Ostium Arteriæ Pulmonalis.

— I. — 2. *f.* Dilated Foramen Ovale, with an open Ductus Arteriosus, and impervious Ostium Arteriæ Pulmonalis.

— I. — 2. *g.* Perforation of the Septum Ventriculorum.

— I. — 2. *h.* Ostium Aortæ communicating with both Ventricles.

— I. — 2. *i.* Transposition of the Aorta and Pulmonary Artery.

For the particulars, both of the appearances of the heart and great vessels, and of the symptoms, which were observed during life, we can only refer the reader to the work itself, and to the well executed figures accompanying it. All that we can attempt in analyzing a work, which contains so much detail, is to notice some of the leading observations of the author as we pass on. For though the whole lies in the compass of but forty-six pages, the words might well have been dilated into a volume of 150 pages, in the ordinary mode of printing, and the matter into one of twice that bulk.

In speaking of the unclosed foramen ovale, Dr. Farre remarks upon the frequency of such an appearance in the dissection of adult persons, in whom, however, no particular inconvenience appears to arise from it; a circumstance which he thus explains. "In these simple cases the communication is so oblique, that the valvular office must by this very arrangement be still performed, if not perfectly, at least so well as to prevent any perceptible disorder of the vital functions." p. 8. Dr. Farre thinks the opinion of the late Mr. Allan Burns, that such a state of the heart in old people is accompanied by dyspnœa, is not well founded; and justly expresses his surprise, that the celebrated M. Corvisart should mention two instances of the open state of this foramen, which he had met with, as rare phenomena. If the septum auricularum is imperfect (as in I. 2. *b*) occasional dyspnœa, and more or less permanent blueness of the skin occur. But if, with a dilated foramen, there is combined an open ductus arteriosus, the vital functions are disturbed in proportion to their extent; blueness, dyspnœa, palpitation, faintness on exertion, obscureness of pulse, &c. occurring in various degrees, as in several cases here quoted and detailed. The variety I. 2. *f*. is more frequent than those which precede it in the table; but the variety I. 2. *h*. which was first described by Sandifort, is, Dr. Farre affirms, by much the most frequent, and is pretty constantly combined with one or other of the preceding varieties, many examples of it having been recently recorded and observed.

Having concluded his detail of illustrations, Dr. Farre proceeds to the ratio symptomatum. The permanent blue colour of the skin affords a sign that a very large proportion of black mingles with the red blood; but malformation may exist, where this hue is not present. Exceptions to this hue are mentioned in I. 1. *a*. and *c*., and in I. 2. *d*. From these exceptions, the author remarks,

"We learn, that if the *full* proportion of blood be circulated through the lungs, although the red blood be subsequently mixed with an equal proportion of black blood in the heart, yet a black colour will not be imparted to the skin. The blue colour is more or less intense, and permanent, according as the capillary vessels of the skin are more or less completely filled, but chiefly

in proportion as the circulation is retarded through the lungs. The explanation of the other symptoms, the irregularities in the respiration, and in the arterial action, as well as the various affections of the brain, connected with over-distention or an imperfect supply of red blood, is sufficiently obvious."

With respect to the temperature of the body, Dr. Farre considers an accurate comparative measurement of the *internal* and *external* heat, in these cases, as a desideratum; as well as a knowledge of the quantity of carbonic acid formed by respiration. From two cases, which he relates, it appears probable that the *internal* heat is higher, in these subjects, than in those who have perfect hearts, whilst the cutaneous temperature is contingent on external circumstances. Whence the author is led to the following reflections.

"A still greater difficulty, however, presents itself with respect to the temperature of this boy; for the stream of blood, which fed the pulmonary artery, being in this case so very small, how could a sufficient quantity of caloric, in its specific form, be combined with it; to preserve a sensible temperature of at least one hundred degrees on the internal surfaces of his body. There seems to be a sufficient evidence that the function of respiration is a source of animal heat. But I am free to confess my opinion, that it is not its only source. Priestley's celebrated experiment proved, that black blood could be converted into red blood, without the actual contact of the air, or the structure of lungs. In like manner, although the lungs may be best adapted to perfect the changes which produce animal heat, it is sufficiently probable that this important operation does not exclusively belong to them.

"The fact that this boy's internal temperature amounted to one hundred degrees, is in confirmation of the opinion that black differs in its capacity for heat from red blood; but if the former, on the internal surfaces, be capable of taking on a higher temperature, by two degrees, than the latter, it is also certain, that, on the external, it is much more easily deprived of its heat, by the various circumstances which favour the reduction of animal temperature. So that, the latter, being able to retain its temperature longer than the former, must hold in combination an extra proportion of caloric.

"I have already attempted to reconcile the contradictory evidence respecting the symptom of coldness of the skin, by proving that its manifestation bears some proportion to the diminution of the pulmonary circulation. The last observation shews farther, that the coldness is regulated by external circumstances:—that, under those which favour the accumulation of animal heat, the thermometer at the skin rises as high, in such a subject, as in one of perfect structure; but that the heat is more slowly accumulated, and, under contrary circumstances, more rapidly expended. From this view we perceive, that a hasty observer, guided only by his sense of touch, on feeling the skin of a blue child, when *exposed*, would report it to be colder than natural; whilst another, making his observation on a similar subject, *well covered* and favourably situated for the accumulation of heat, would report the temperature of his skin to be as warm as natural."—p. 41.

Of the second species, or "malformations of the heart, or its arteries, *only* impeding the circulation of the blood," Dr. Farre mentions but two varieties; and the first of these (II. a. "Left ostium ventriculi contracted, and mitral valve rigid,") is stated on the authority of the late Mr. Allan Burns, till farther evidence shall decide, whether it be properly placed among the malformations, or whether it be not the result of disease; since chronic inflammation may produce such a change. The second variety, b. is that, in which the "ostium aortæ is narrowed by having two instead of three semilunar valves," and is very rare. Dr. Baillie has described and figured it, and the author has here described and delineated another specimen.

In his concluding observations, Dr. Farre admits that physiology is more likely to be advanced by the investigation of these malformations of the heart than pathology; but observes that the task of soothing and mitigating, as well as avoiding to inflict unnecessary pain, is a part of the physician's duty. There are two sources of distress from which these patients suffer; namely, in proportion to the diminished quantity of red blood which enters the general circulation, and to the mechanical impediment to the transmission of the blood, or to both conjoined. Referring the consideration of the latter to the subsequent essays, he proposes some inquiries as to the means of alleviating the former. The

skin he believes to be in some measure a compensatory organ, by which the impeded function of respiration may be partially relieved; and from the palpable benefits derived from the warm bath, in the most severe proxysms which the subjects of these malformations suffer, he deems it probable that their comfort may be promoted by living in a regulated atmosphere, and keeping the skin in that warm and moist state, in which it may in some degree compensate for the imperfect function of respiration. Something, he suggests, may also be done occasionally by modifying the position of the patient, to favour the influx of red blood into the aortic system. In this, however, the patient will commonly "minister to himself;" for the easiest posture in each case can only be learned from experience. The distress of these unhappy patients, may be likewise mitigated by regulating the kind and quantity of food, and the state of the bowels, by the mildest remedies.

It will be obvious, that our author has taken a very comprehensive and at the same time a very detailed view of his subject, and has left nothing to be added, except what future investigation may bring forth. Considering the numerous illustrations by engravings, the price of this work appears to us below the ordinary average.



[From the Edinburgh Med. and Surg. Journal.]

Die Keratonyxis, eine neue gefahrlosere Methode den grauen Staar zu operiren. Von W. H. J. BUCHHORN, Med. et Chir. Doctor. Magdeburg, 1811.

DEPRESSION was for nearly two thousand years the only mode of curing cataract, and was, with little change, performed according to the description and precepts of Celsus, and of the Alexandrian school, until about the middle of the last century, when the operation of extraction was invented by Daviel. Since that time, a competition has existed between the abettors of these two modes of operating, and the latter, by the preference it obtained, had nearly banished the former from practice. Both operations found numerous supporters, and various improve-

ments have been made in each of them, by the simplification of the instruments and attention in the use of them, so that both have been brought to a degree of perfection that leaves little to be altered or improved. That the depression gained many friends and defenders, perhaps arose from its being supposed possible to perform it with greater probability of success, when the number and importance of the accidents that might occur in extraction, were weighed against those that present in depression.

Attentive observation, even in the more early ages, and in more modern times, a minute investigation of the structure of the crystalline lens, as well as the examination after death of the eyes of those who had been at a former period cured by depression, discovered the solubility of the lens. This was so frequently remarked, that several surgeons, and especially Pott, who was a zealous patron of the old method, proposed a peculiar method of depression, resting on this fact. It consisted in the breaking down of the lens in the posterior chamber, by means of the needle introduced in the usual way through the sclerotica, leaving the subsequent solution of the lens to the absorbent powers.

Gleize* was also acquainted with the solubility of the lens. In extracting a cataract, the moment the knife entered the cornea, the patient was seized with convulsions, which prevented the incision of the cornea being completed. To give the patient some chance of cure, he introduced a couching-needle through the puncture, and destroyed as much as possible the structure of the lens and its capsule. In twenty days, the cataract was absorbed, and the patient's sight restored. He afterwards repeatedly performed the operation in the same manner with success. Conradi, perhaps encouraged by Gleize's success, passed a fine lancet-pointed cataract-needle through the cornea, punctured the capsule, and left the lens to be absorbed. Professor Scarpa, also, after breaking down and depressing as much of the opaque lens as possible, directed the remaining fragments to be pushed into the anterior chamber, and left to be

*Nouvelles observations pratiques sur les Maladies de l'Oeil et leur traitement. Paris 1786.

absorbed. All these methods rested on the facts of the solubility of the lens in the eye.

In consequence of the favourable result of the above mentioned observations, the author of the treatise now before us was led to make a number of experiments on animals, which he published in 1806, in his inaugural dissertation *De Keratonixide*. His proposed method having been favourably received, and since adopted, by Professors Langenbeck and Himly of Gottingen, the author prosecuted his investigation, and in the present work has given a more full description of his mode of operating, a comparison of it with depression and extraction, and has added the history of some cases in which it was successfully employed.

Keratonixis (from *κερας* and *νύκτω*,) *punctio corneæ*, is defined by Dr. Buchhorn to be the perforating the cornea by a proper instrument, to perform an operation in the internal part of the eye. Former experiments of a similar nature were confined to cataract, but this operation may be applied to other diseases of the eye, as for the cure of the closed pupil, the evacuation of matter, &c. In the following pages, however, the term is confined to the mode of cure of cataract.

The instrument employed by the author, resembles Scarpa's crooked needle, with this difference, that the curved part is not so long, and the curve not quite so great. The point and sides must be very sharp, and the body of the needle does not increase in thickness from the point, which allows it to be easily moved about in the eye. No preparation of the patient is necessary. Before the operation, the pupil is to be dilated by the solution of the hyoscyamus.

“ When the dilatation is sufficient, an assistant raises the upper eyelid with his fingers, the operator lays hold of the needle, as in depression, with the thumb and two first fingers, the other two resting on the temple, nearly on the same level with the eye, as a steadying-point for the hand; the handle of the needle is so far turned backwards, as to lie over the ear of the patient. The point of the needle, which is then situated in the region of the outer angle of the eye, is directed towards the cornea, with its concave part to the cornea, the convexity towards the operator. In this position, he seizes the favourable moment, when the eye is steady, to enter the cornea, and the needle passes without

resistance through it, on pressing its point gently at the proper point, moving the end of the handle of the needle from behind forwards, so as to describe the fourth part of a circle."

The point at which the needle is to be entered, varies according to the structure of the eye, and the nature of the cataract. It should not be introduced nearer to the edge of the cornea than about the distance of a line, for fear of injuring the iris; it may even be passed through the centre of the cornea, as no cicatrix is left by it. The author then proceeds:

"When the point of the needle has entered the anterior chamber, part of the aqueous humour flows out along it. But the cornea does not consequently lose its convexity; the pupil merely contracts a little. The point of the needle is then to be directed against the cataract, through the dilated pupil, and the capsule is to be torn in every possible direction. If the lens is *milky*, or of a fluid or soft consistence, the contents of the capsule immediately flow out, mix with the aqueous humour, and render it muddy. The capsule now alone prevents vision. But after it is emptied, it collapses, and, by a slight pressure on its upper part, may be easily depressed into the bottom of the posterior chamber. The muddiness of the aqueous humour is removed by absorption in a few days, and the vision restored.

"If the cataract is *papfy*, *caseous*, or *crumbly*, it is to be broken down in its natural situation as much as possible, without injuring the iris. We endeavour to draw some portions through the pupil into the anterior chamber, as they are more quickly dissolved there than in the posterior, and leave the diminishing, solution, and absorption of the opaque fragments, to nature. This practice resembles that of Pott and Scarpa, only with this difference, that they, as has been noticed, passed the needle through the sclerotica, while I introduce it into the eye through the cornea. Hard cataracts, which I cannot break down by this operation, I depress."

After this, the needle is to be withdrawn in the same direction it was entered in; and if the cataract is fluid, part of the opaque matter frequently passes out after the needle is removed. The eye-lids are then to be closed, and after a few minutes they are to be opened again, to examine the state of the lens and iris. In some cases, we have seen in the adult the size of

the opaque body so much diminished, that the patient was immediately able to distinguish objects held before him. The author says, that he has usually secured the eye-lids, after the operation, with strips of black court-plaster, and over this a compress and circular bandage. In general, we have found it unnecessary to confine the eye-lids, but merely to apply a compress of linen, and pin it to the night-cap. The eye may be opened daily after the operation, and gradually exposed to the light. At first, many of the patients were dismissed three, five, or eight days after the operation; but finding that many neglected the cautions given them of not using the eyes, the author observes, that it will be prudent, even in the most favourable cases, to keep them a fortnight.

In forty cases, seven were attacked by inflammation, and in three eyes the absorption had not taken place after a period of eight weeks. In four of the seven patients, the inflammation was owing to the misconduct of the patients. In one eye the keratonyxis failed, in consequence of the very firm texture of the capsule in a congenital case, which, although torn by the needle, was not absorbed in half a year, and was at last extracted. In a patient affected with amaurosis, previous to the appearance of the cataract, it naturally failed, but restored the patient to the same state as before the lens was affected. The result therefore is,

“Of forty operations, twelve failed. In three eyes, no complete solution has as yet taken place. Seven eyes suffered from inflammation; in five of these the pupil closed, and vision can only be restored in these cases by the formation of an artificial one;—in one the pupil adhered to the cataract, which rose again after being depressed, and one produced no bad effect. One operation failed; because the structure of the cataract prevented its being absorbed. I also reckon the operation on the eye affected with amaurosis among the failures. The remaining twenty-eight succeeded completely, and the patients saw either immediately, or the absorption went on for six or eight weeks, after which time the sight was perfectly restored.”

From the failures, we may, with propriety, deduct the three cases of unabsorbed cataract, the case of amaurosis, and the capsular cataract, and one, where, although inflammation came on,

active means were employed, and the patient ultimately saw very well. This leaves the proportion of failures six to twenty-eight,—unquestionably a very favourable result to Dr. Buchhorn's operation. Professor Langenbeck only met with one case of inflammation out of ten cases, and it was evidently caused by an injury of the iris, from too thick a needle having been used.

With regard to the symptoms consequent to the operation, the author observes that he has sometimes observed vomiting, which however always yielded to appropriate remedies, and was of no consequence. This symptom we have never met with, and would not be led to expect it, as in this operation no nervous tunic is injured, as in the old mode of depression. In young people in whom the operation succeeded, he never observed the distention of a single blood-vessel of the conjunctiva, and, even in patients of fifty or upwards, there was merely a passive congestion of the vessels of the sclerotica, and slight fulness of the conjunctiva, without pain, or other symptoms of inflammation.

Without declaring this method as advisable in every kind of cataract (although he hopes to show that it is so), the author proceeds to mention a few cases in which it is particularly applicable. To these belong,

“1. Cataracts which the operator distinguishes to be *soft* or *fluid*. This is the case where the *keratonyxis* is almost immediately beneficial. The opaque mass flows out, the capsule collapses, is partly depressed, and absorption accomplishes the rest.

“2. *Adhering* cataracts. Their *depression*, as well as the *extraction* of them, is the more difficult the more generally they adhere to the circumference of the pupil. If, according to the old method, force is in any way used in separating them from the iris, iritis and closure of the pupil are the consequence. After the destruction of the capsule by the *keratonyxis*, in which the iris is not injured, the lens is absorbed, if it is not osseous, (and how rare are such cases?) in a longer or shorter period.

“3. Cataracts *in young people*. Children were formerly rarely submitted to either of the former methods before the tenth year, as both were liable to inflammation, which required remedies, and a regimen which children could only be forced to submit to. After the performance of the *keratonyxis*, on the con-

trary, no other care of the eye or patient is necessary, than to prevent the child from rubbing the eye, if affected with itchy or stinging pain. The light, even in some cases, need not be kept from the eye, as the pupil becomes clear only in process of the absorption, and till then the remains of the cataract act as a veil before the eye.

“ 4. *Congenital cataracts.* These, according to the assertion of most surgeons, are always fluid. The effect of the keratonyxis, is sensible at the very moment of the operation; the whole of the mass contained in the capsule flows out.

“ 5. In persons who have very contracted eyelids, or very *deep-seated eyes.*

“ 6. In persons who are only blind in one eye. The old methods always occupy a considerable time from the consequent symptoms, and require in extraction the guarding against inflammation, and in the depression the same, with the avoiding violent motion, in order not to make the cataract rise again. All this is seldom necessary in the keratonyxis, which is not followed by inflammation. The patients, although with their eye tied up, follow their affairs as formerly, Perhaps the absorption is even promoted by the motion. Many of my patients from the country, and among these, persons between fifty and sixty years of age, left me on the third day after the operation, and awaited the effect of it at home.

“ 7. In persons who are weakly, or disposed to convulsions. The depression causes pain in the puncture through the sclerotica, and the subjacent coats; the extraction indeed only perforates the insensible cornea, but occasions painful sensations in the passage of the lens through the pupil. The keratonyxis occasions, as already shewn, no pain, and is peculiarly applicable in persons who are very timid, and are subject to nervous affections.

“ 8. If one of the old methods fail in the one eye, we ought to choose for the other the keratonyxis, which undoubtedly does less violence to the eye, than the repetition of the depression or extraction.

“ 9. In persons, whom we do not wish to expose to the uncertain event of the old methods, whether they will restore the sight or make the person totally blind. As for example, at pres-

ent in the King of England, where the opposition party, in case of an unsuccessful issue of the operation, raise the doubt, whether the King can still reign? If the keratonyxis fails, that is, if it has no effect, and the lens with its capsule is not absorbed, it may be frequently repeated at short intervals, depending on the state of the eye and of the patient. The eye is never destroyed by this operation; and if it should not succeed, both of the other methods might still be employed."

Such are the cases in which the keratonyxis is principally applicable. But even in cases of firm cataracts which cannot be broken down, the author conceives that it might be employed by simply depressing them. In such cases, however, our experience of both methods would lead us to give a preference to the extraction of the lens, as the keratonyxis, although not liable to all the objections urged against depression, is still exposed to that of the pressure occasioned on the nervous and irritable tunics of the eye exciting inflammation and other symptoms.

We now proceed to give a short comparison of the keratonyxis, with the operations of depression and extraction. In *depression* we pierce first the conjunctiva, a very irritable tunic, so far as it covers the sclerotica; then the sclerotica, after that the choroid-coat full of vessels and nerves, and the ciliary circle; or if the puncture is more forwards, the corpus ciliare, and processes. At last the needle appears in the pupil before the lens, which is depressed, a movement effected entirely in the dark. The patient may perhaps see after it is finished, but the frequent consequence of the injury of so many delicate parts is inflammation, and the exudation of an opaque membrane or closure of the pupil. In extraction, as in keratonyxis, only the cornea, and the less irritable conjunctiva over it, are wounded; but there is a great difference between the extent of the wound, and the injury occasioned by the passage of often a very large lens, besides the discharge of a portion of the vitreous humour, and the risk of the collapse of the eye, irregularity, or even closure of the pupil. In the keratonyxis, on the other hand, the insensible cornea is pierced only at one very small point, the needle passes through the anterior chamber and pupil, and posterior chamber, into the capsule and substance of the lens. All these steps are visible through the cornea; they excite no pain, and

no parts are injured which are particularly predisposed to inflammation. Scarcely any confinement is necessary, and the failure of the operation merely consists in its having no effect, and the lens remaining from some cause unabsorbed. The eye remains in the same state as before the operation, and we have it still in our power to perform depression or extraction, or what is still better, the repetition of the keratonyxis, according to Professor Langenbeck's advice, which we have also frequently practised with success.

We now proceed to consider how long we ought to wait before we conclude that the operation will have no effect. This is very indeterminate, and depends on the age, constitution of the patient, and other circumstances of the case. In children, and in soft or very fluid cataracts, the cure is very rapid, often taking place at the time of the operation. But it is different with hard or capsular cataracts. The author says, that in most of his patients, he has observed the absorption take place in six weeks ; and when it did not go on well, he has either repeated the operation, or employed extraction or depression, according to the circumstances that presented during the first operation. He, therefore, conceives himself justified in fixing sixty days as the time in which the greater part of the cataract will be absorbed. Gleize mentions fifty days, and Conradi twelve weeks, and Voelkers a year, as the boundary of the absorption of the lens. From the experience we have had, we are disposed to wait a much shorter period before repeating the keratonyxis. We have observed, that, after two or three weeks, the absorbent process seems stationary ; and, after that time, we have been in the practice of again puncturing the opaque body with the needle, or of making a small incision with a cataract knife, and of following Gibson's plan of extracting the fragments through this opening, with the curette or a small hook, and we have often had the satisfaction of thus materially accelerating the cure ; so that we would by no means follow the author's advice, of keeping the patient for so long a period in a state of doubt and anxiety.

The author, after mentioning a few disadvantages attending this operation, which appear to us of no material consequence, and equally applicable to depression and extraction, proceeds to

relate the history of twelve operations on different kinds of this disease, beginning with the fluid or soft, and ending with the hard and capsular cataract adhering to the posterior surface of the iris. In all these different states the operation was successful, and several minute circumstances are noticed, of importance in operating on these various states.

In our account of this treatise, which appears to us to be the result of actual experiment, and drawn up with care and attention, we have abstained from any comparative view of its merits, opposed to the other methods employed for the cure of cataract. We have always considered that an operator for cataract should be familiar with all the methods of operating, as there are some cases where we would give a preference to extraction, and others where we would expect similar benefit from depression. The keratonyxis, we believe, is not as yet generally employed in this country. From the perusal of the tract before us, and from our own experience in congenital cataract, as well as in the cataract of young people, and even of the adult or aged, we are disposed to recommend its employment as in many respects preferable to depression, or the breaking down of the lens, as now generally practised.

REVIEW.

Medico-Chirurgical Transactions, vol. v. pp. 447. London, 1814.

[Concluded.]

THE 11th Article contains observations on some of the causes which destroy the fœtus in utero ; with an account of a case in which a successful mode of treatment was employed in preventing that accident, by D. Stewart, M. D. Lecturer on Midwifery. This paper contains an interesting case, in which pregnancy was checked eight successive times and dead children delivered: The symptoms which marked this case, were severe pains in the sides, head and abdomen, at times accompanied with distressing diarrhœa, at others with obstinate constipation of the bowels. In the ninth pregnancy, at the time in which these symptoms took place, viz. the tenesmus and diarrhœa, opiate suppositories were employed with marked benefit. Two or three grains of opium being introduced into the rectum, and this was repeated as often as there was any degree of tenesmus. The woman went on to the full period of pregnancy, and was delivered of a healthy boy.

ART. 12. *Case of Cynanche Laryngea, with remarks.* By Thomas Wilson, Esq. Surgeon.

In the second volume of this Journal will be found a review of the 3d volume of the *Medico-Chirurgical Transactions*. That article contains a very accurate account of *Cynanche Laryngea*, by Dr. Farre. We refer our readers to that volume, while at the same time we inform them, that the treatment by bleeding so strongly recommended by Dr. F. is supported by the experience of Mr. Wilson. Mr. W. insists much on vesication in the later periods of the disease, and states that he feels confident of the benefit that may be derived from the use of laxatives, when the state of deglutition permits of their use.

Our limits but barely allow us to express our pleasure at the perusal of the next Article, viz. the 13th, *On Monstrous Pro-*

ductions, by Mr. Lawrence. It is a subject of high physiological interest, and has received from the present distinguished writer a very able investigation. Though extended through many pages of the work before us, should that work fall into the hands of our readers, they will be richly rewarded for its perusal.

The history of a *Tubercular Eruption, of a syphilitic appearance, but curable without mercury*, by T. Bateman, M. D., F. L. S. constitutes the 14th Article, and is of practical utility. This eruption occurred after the usual precursors of eruptive diseases, viz. febrile symptoms, about the sternum and epigastrium, and gradually extended universally. The peculiar painful affections of the limbs resembling syphilitic rheumatic symptoms, were increased after the eruption; the throat became sore and resembled in some degree the venereal affection of that part; the appetite and strength failed to an alarming degree; the head was clear; tongue furred and clammy; pulse feeble and quick; bowels costipated. In consequence of absolute neglect of medicine and nourishment, one case proved fatal. Tonics and occasional purgatives were the remedies. The bark and mineral acids afforded relief; but the decoction of sarsaparilla was of most decided benefit. Slight desquamation in the centre of the eruptions seemed most remarkable however in the tubercles affecting the legs; these tubercles were very small, slightly elevated, at first of a dusky rose-colour, smooth and shiny, but became of a more purple or chocolate hue.

The record which is contained in the 15th Article, is a very useful one. As the title intimates, it is of a case in which a second operation was required in bubonocoele. In a fit of coughing, a large quantity of intestine of a deep claret colour burst through the wound in the groin, which was made in the preceding operation. On examination, adhesions were found to exist between the intestine and the canal, between the internal and external rings; these being destroyed, the internal ring was found so closely contracted round the intestine, as evidently to cause the strangulation. This was dilated and the hernia reduced, though the dilatation was made with much difficulty. From the patient Mr. Forster now learnt, that for the hernia he had for some time worn a truss which ever gave him uneasiness. From various circumstances, it appeared that the gut had never been per-

fectly reduced, and the pressure of the truss had produced the adhesions above mentioned. He at length gave up the truss, and in suddenly crossing a street, an unusual quantity of gut came down into the scrotum, an operation was performed, and the newly protruded part only reduced; a fit of coughing brought on the hernia through the wound, for which Mr. F. was called, and by destroying the adhesions the whole gut was reduced, and the disease radically cured.

The patient mentioned in Article 16th was relieved very sensibly by the use of opium in his disease. This was a case of Diabetes Mellitus. He was allowed a full diet, with a moderate portion of milk and meat. He began with a grain of opium at bed time; this dose was gradually increased, both in frequency and quantity, till the first of March—he then took in twenty-four hours 24 grains. He began the use of it on the 10th of February. From the 1st to the 12th March he continued the medicine in this quantity, divided in five or six portions, when he suddenly left the hospital, his health being considerably improved.

ART. 17. *Further observations on the diseases which affect the synovial membranes of Joints.* By B. C. Brodie, Esq. F. R. S.

An apology would be due Mr. Brodie to whom we have been indebted for so much valuable matter, already in this Journal, should we seriously sit down to compress his long and highly interesting paper into the small half page only which our limits allow us to notice it in. Mr. Brodie informs us that, “in the present paper, I propose to communicate some brief practical observations on the symptoms, by which those diseases which affect the synovial membranes, are to be distinguished, and on the treatment, which should be adopted for their relief.” There is in this paper such a variety of valuable facts, so careful an investigation of causes, and such precision in the rules of treatment, that we will not prescribe to ourselves the ungrateful labour of abridgers, and our limits barely allow us room to recommend it to the careful attention of our readers.

ART. 18. *On the Muscæ Volitantes of nervous persons.* By James Ware, Esq. F. R. S.

Three cases of this imperfection of vision are recorded in this paper by Mr. Ware. The imperfection consists in the appear-

ance of dark coloured moats before the eyes. These assume various shapes and figures, appear at different distances, and move in different directions, but have no tangible existence in the places where they are seen. Though they do not hinder a distinct perception of the smallest objects, the sight is incommoded by them; and the mind is agitated by the apprehension that they are certain precursors of the loss of sight. The cases in this paper are of the affection as it appeared in *nervous persons*. The treatment was very simple, and perfectly effectual. It consisted in strengthening the constitution, and particularly the nervous system, by giving two or three times in the day small doses of the volatile tincture of valerian, mixed with an equal quantity of tincture of castor, and joined occasionally with the camphor mixture, or infusion of cascarilla; warm water, or a warm infusion of rosemary, were to be applied to the eyes and forehead whenever they feel heavy and uncomfortable; and the forehead, temples, and outside of the eyelids, should be embrocated morning and evening with a camphorated rosemary spirit.—Change of residence, amusements, &c. were also recommended. The above treatment was found eminently useful.

ART. 19. *On the treatment of Erysipelas by incision.* By A. C. Hutchinson, M. D.

The species of Erysipelas in which this treatment was adopted, and found highly useful was that styled by nosologists, Erysipelas Phlegmonoides. The method pursued by Dr. H. is thus described: "I have practised the plan of making several free incisions with a scalpel, on the inflamed surface, in a longitudinal direction, through the integuments and down to the muscles, as early in the disease as possible, and before any secretions had taken place. These incisions may be about an inch and a half in length, two or three inches apart, and vary in number from 6 to 16, according to the extent of surface the disease is found to occupy. Fomentations alternate with cold saturnine lotions are to succeed the operation. As soon as any *fluid* is secreted it can readily pass through the incisions, and the circulation of the integuments, will be effectually prevented.

ART. 20. *Case of obstructed Aorta.* By Robert Graham, M. D.

Of this very remarkable and interesting case our limits prevent our noticing any thing more than its record in the transactions.

ART. 21. *Account of an epidemic Fever which occurred at Gibraltar in the years 1804, 1810, and 1813.*

ART. 22. *On the diuretic properties of Pyrola Umbellata.* By W. Somerville, M. D.

This plant was given in the form of an extract, in the dose of five scruples daily, and, according to the writer's representation, with a decided increase in the urine. It is stated to exert its effects upon the kidneys for some time, also to act occasionally as a tonic.

The Pyrola is an American plant, and its astringent and diuretic properties have been noticed in the *Materia Medica* of Dr. Barton and an inaugural dissertation by Dr. John S. Mitchell.

ART. 23. *Case where a seton was introduced between the fractured extremities of a Femur which had not united in the usual manner.* By James Wardrop Esq. F. R. S. Edinburgh.

Two very curious and interesting facts are mentioned in the 2nd page of this paper. They occur while the author is detailing the circumstances which may prevent the union of a fractured bone, "There are particular states of the system which seem to interrupt the formation of an ossific union. This is particularly remarkable in women who are pregnant, many instances having been observed of bones having been fractured during pregnancy, and never shewing any disposition to unite till after delivery. It is a fact no less curious, that there are some diseases during which, the osseous matter forming the union of a bone which had been fractured is altogether absorbed, and the fracture remains un-united till the disease subsides; after which a new bony union takes place."

The methods to procure union, are mentioned, viz. *blisters* on the skin over the fracture, which have been found very useful; *Friction* of the broken extremities of the bones is another method, and has been effectual; another method is cutting down on the fractured ends of the bones, and rasping them; another and

still more sure one, is cutting close upon the bones, and sawing off their ends. These two operations last mentioned are so difficult, so dangerous, and so often unsuccessful, that they are now seldom attempted. A *seton* introduced between the extremities of the bones, was next proposed for the purpose of exciting those actions on which reasons re-union depend. "Surgery is indebted to Dr. Physic, of New York (Philadelphia) for this ingenious operation;" Mr. Wardrop goes on to detail many interesting circumstances in a case in which this operation was performed, "and though at one period," observes the author, "the effects of the operation were expected to have been much more complete, yet he (the patient viz.) considers the benefit which has been received from it, sufficient to recompense him for its sufferings." We can only add, that this valuable paper contains also a case in which, after a fracture had been united, a re-absorption of the bone took place; and another in which an un-united fracture was cured by the introduction of a seton. This last is extracted from the *Medical Repository*, Vol. 1, New York, 1804, and is the case reported by Dr. Physic. Mr. Brodie has added to this a case of artificial joint, in which Dr. Physic's operation was performed, and with the effect of a firmly consolidated bony union. Mr. Brodie also adds, he has now under his care a man 30 years old, on whom the operation has been performed by fractured thigh, but sufficient progress has not yet been made towards a cure to enable me to lay the history of his case before the Society.

ART, 24. *Further Observations on the Cataract.* By Benjamin Travers, Esq.—Demonstrator of Anatomy, at Guy's Hospital, &c. &c.

The first part of this paper is devoted to an inquiry into the textures of cataract; and the importance of being perfectly acquainted with them; and to the circumstances which determine species, and the characters of those species. At p. 395 of the volume, a species of cataract is mentioned, which from a combination of a fluid superficies with a caseous bed, Mr. T. has named "mixed cataract." Another instance has been met with by him, viz. a caseous superficies covering a hard nucleus. This is more frequent than the former. The influence of age, on the

cataract, or rather the consistence of cataracts at different ages, is mentioned, and some popular opinions corrected, page 396. The circumstances which may invert the order which appears most natural is also adverted to, and a very important fact is mentioned, p. 398, viz. "In general at whatever period of life a cataract appears, it most nearly resembles the character in form and consistence, proper to the healthy lens at that period; waiting for the ripening of cataracts therefore is the height of absurdity." Rules for couching the most favourable cataracts for the operation, and those which do admit of it, follow. Among those which cannot be couched, is especially noticed, "a uniformly soft cataract, whether caseous or flocculent; and although the nucleus of the mixed cataract may be depressed, the superjacent lamellæ will rise in the pupil and must be absorbed."

The distressing symptoms are next recounted of performing the operation under such circumstances, and the fatal effects on vision. We cannot follow the author through his reasonings against couching in any case, but merely give his result, viz:—that "the hazard of extraction cautiously performed, does not in my opinion counterbalance the certainty of partial disorganization induced by couching." The extraction of the solid cataract, it can never be questioned is *cæteris paribus*, greatly preferable to its solution in situ. At page 404 are mentioned the circumstances which may be unfavourable to the operation of extraction. The advantages of his operation to that which invites the solution of the cataract are next detailed. Mr. Travers acknowledges one of his operations to be similar to that of Mr. Gibson of Manchester, who is lost to the profession and to the world by death. A concise summary of the contents of this and a preceding memoir on the same subject, closes this valuable paper.

ART. 25. *A case of Aneurism of the Gluteal Artery, cured by tying the Internal Iliac.* By W. Stephens, Esq.

For the operation we must refer to the work. The simple unaffected manner in which the author speaks of it, shall only be mentioned. "This I believe is the first time that the internal iliac artery has been tied; the operation was neither very difficult nor very tedious. The woman did not complain of much pain; and I am certain she did not lose one ounce of

blood. I found no difficulty in avoiding the ureter : when I turned the peritoneum inwards, the ureter followed it : had it remained over the artery, I could easily have turned it aside with my finger." The incision was about five inches in length, was made on the left side, in the lower and lateral part of the abdomen, parallel with the epigastric artery, and nearly half an inch on the outside of it. The incision was continued to the peritoneum, and that pushed inwards from the anterior superior spine of the ilium till the internal iliac was felt, this was tied, and the woman in six weeks was perfectly well. The aneurismal tumour was nearly as large as a child's head.

ART. 26. *Report on the principal natural diseases that have prevailed among the children of the Royal Military Infirmary at Chelsea, from 1804 to 1814.* By P. Macgregor, Esq. Surgeon to the Institution.

"The result of the inquiry" in the words of the author is, "So far as my opportunities have enabled me to form an opinion, leads to the conclusion, that measles, whooping cough, and scarlet fever have not been more fatal, or even more severe, at the Military Asylum, in cow pox, than in small pox subjects."

We here bring this labour to a close, and have only to regret that our limits prescribed so partial an abstract of its contents. It will answer our purpose if this should invite our readers to a careful perusal of the whole volume.



A Treatise on the Puerperal Fever, illustrated by Cases, which occurred in Leeds and its vicinity in the years 1809—1812. By WILLIAM HEY, Jr. Member of the Royal College of Surgeons in London, and surgeon of the General Infirmary, and of the House of Recovery at Leeds. London, 1815. 8vo. pp. 238.

IN the introduction Mr. Hey thus defines puerperal fever. "The puerperal fever in its most simple state may be defined to be, fever in child-bed, accompanied with pain which has no complete intermission, and extreme soreness in the abdomen." These are properly its pathognomonic symptoms.

The division of puerperal fever into four kinds, by Dr. John Clarke, contained in his *Practical Essays*, is particularly adverted to by Mr. Hey ; and though he notices these and some others mentioned by Dr. Thomas in the *Modern Practice of Physic*, "because (he remarks) it is obvious, that whatever may enable the practitioner to discriminate in cases of alarming and obscure disorders, must be highly valuable," he continues, "when the puerperal fever which I purpose to describe, first made its appearance in Leeds, I was so far from deriving any advantage from these distinctions in real practice, that, on the contrary, I am persuaded an attention to them had no inconsiderable share in restraining me from adopting that method of treatment, which afterwards proved so eminently successful." The truth is, that the epidemic under consideration, approached the nearest to the disease described by Dr. Clarke as the "Low fever of child-bed, connected with affection of the abdomen, which is sometimes epidemic," and to that described by Dr. Thomas as the puerperal fever which has a "strong tendency to the typhoid type." This perfectly explains what appears somewhat contradictory in the above quotations ; for the practice which was at last found the most successful in the epidemic at Leeds, consisted in what was diametrically opposite to the treatment recommended by the two authors just quoted. To those who have read the highly valuable treatise of Dr. Gordon on the epidemic puerperal fever of Aberdeen, more especially those who have escaped the contradictory and distracting influences of almost all other writers on this most fatal disease, will delight to have their opinions confirmed, and their practice sanctioned by the highly respectable work now before us. It may not be digressing too far to state that a very valuable work by Dr. Armstrong on the puerperal fever as it appeared in Sunderland preceded this work, though the epidemic of Leeds was prior to that of Sunderland. Ill health was the cause of the delay of Mr. Hey's work ; after this explanation, he remarks, "I will only add, that if there should be found any coincidence in my sentiments and practice with those of Dr. Armstrong, so far our respective works will stand as independent testimonies of a similar view, as to the nature and treatment of a very important disease." And a very striking and important coincidence does exist. So well convinced was

Dr. Armstrong of the importance of "copious depletion" in this puerperal disease, that in some "Additional Facts and Observations," published by him in the 4th number of the Edinburgh Medical and Surgical Journal, he remarks, "At first sight it may appear, that the low puerperal fever should be treated more mildly than the simple puerperal peritonitis; but this is truly a most fatal delusion; and I do not hesitate to affirm, that the former requires full as much depletion as the latter, with this important caution, that it is more pressingly demanded at the commencement, because the low puerperal fever is the more aggravated form of the disease, and because it is more rapid in its progress, and more destructive in its consequences than the other. Unfortunately for suffering humanity, the greater degree of abdominal inflammation which *really*, though not always *apparently*, attends it, has been too frequently allowed to proceed uninterruptedly, under the fallacious mask of typhus langour and oppression."—p. 447.

The second chapter of Mr. Hey's work, contains a history and symptoms of the disease, viz. as it appeared in Leeds, 1809.

The opinions and facts mentioned under the head of history are passed unnoticed. There were but few circumstances in which the disease differed from that mentioned by Dr. Gordon. The influences of place, time, &c. one opinion, are not felt or understood at a distance, and in a complaint whose pathognomonic symptoms are every where the same, accidental occurrences must depend on peculiar causes, which can hardly be provided against, and which can be perfectly developed only during the actual progress of the disease itself.

The pathognomonic symptoms of puerperal fever have already been quoted from the introduction to Mr. Hey's work. The following marked the epidemic of Leeds. The most usual time of attack was about forty-eight hours from the time of delivery, and till this time the patient was perfectly well. She was now seized with rigor or shivering, this was succeeded by a great degree of heat, often terminating in profuse perspiration and severe pain in the abdomen. The pain had no complete intermission, sometimes no remission; but it was commonly much aggravated at intervals, so as to resemble the throes of labour. It always left the abdomen extremely sore in the intermission, so that

pressure or motion occasioned very great uneasiness. The pulse became rapid very early in the disease, and within a few hours was found to beat from 110 to 150 strokes in a minute. The head was more commonly affected with giddiness than with pain. The state of the skin was various. At times dry and hot, its most general character; at others moist, cool and pale. After the heat had gone off, the face was observed to be pallid, and the countenance expressed much anxiety.

The tongue was white, somewhat furred, and occasionally dry in the middle; but most commonly it was moist, and not affected in any due proportion to the violence of the fever. The disease acted almost specifically on the functions of the *mammæ*. If the milk had appeared it soon ceased to be secreted, and if it had not, it was entirely prevented. The lochia in this epidemic were affected as they have been during others of the same kind, at times not at all affected, at others suppressed, sometimes re-appearing afresh during the continuance of the disease. The stomach and bowels were more strikingly affected. In bad cases vomiting came on very early. In general however it marked a more advanced stage of the disease. Early in the disease the bowels were easily affected by purgatives. If it had subsisted for some hours, the constipation yielded very slowly to cathartics. A spontaneous diarrhœa was a common symptom towards the close of the disease. A degree of fulness in the hypogastric region was often evident from the first attack, and the uterus forming a distinct tumour above the pubes could be at times easily perceived. Pressure upon it gave exquisite pain. If the pain was not relieved or the disease checked, the swelling began to extend, till at length the whole abdominal region was occupied by it,—“the enlargement of the uterus was lost in the general tumefaction.” The size of the uterus diminishing was a very favourable symptom. The patient being able to change her position; and the quickness of breathing (the consequence of the swelling and soreness of the abdomen) lessening, were also very favourable symptoms. If the disorder was not checked, those symptoms which are the usual harbingers of death, though not peculiar to this disease, followed each other in rapid succession, and the melancholy scene was usually closed in a few days from the commencement of the attack. “This was the

most common form and course of the disease, when its violence was not abated by the remedies employed." Great and embarrassing varieties in its appearances however occurred, and a very interesting part of the work is that which is occupied by the details of these varieties. We have already mentioned the most common *period of its attack*. So far from this being always the case, in one instance the author thinks the commencement of the disease might be dated from the seventh hour after delivery. In another case all the symptoms of puerperal fever appeared a few days previous to delivery. *Rigor*, which has been mentioned as so common a precursor, did not always usher in the disease. Where it was wanting, and it was so in some of the worst cases of Mr. Hey, the patient was always in the greatest danger, for the pain in the abdomen was mistaken by the friends, and might be even by the physician for common after-pains, and thus the best methods of treatment neglected, and the best moments for adopting them of course lost. In some cases the pain did not immediately follow the rigor, and in others it returned several times during the disease, even in cases which terminated favorably. *Pain*. "This was a very deceitful symptom; and when it was not preceded by rigor, occasioned great embarrassment, by the singular manner of its attack, and consequent difficulty of distinguishing it from after-pains." In some cases we shall find pain among the first symptoms. In many the very first. In others, rigors may precede. In some the pains may abate, and appear only in paroxysms, and the intervals want many of the other common symptoms of the epidemic. In that under notice, the after-pains were unusually severe, and their occurrence was unusually frequent. And farther, when the pains of the genuine disease came on in the irregular manner above noticed, the pulse was not immediately affected, though it afterwards became as rapid as when the disease had commenced with rigor. The seat of the pain was not always the same. The principal seat of the pain was occasionally in the groin, where the round ligament of the womb emerges. But amidst all this embarrassment, the known existence of the epidemic, and its known fatality, will awaken and keep active the utmost vigilance to detect it in its most dangerous disguises, those, viz. in which it may appear to us under the ordinary cha-

racters, of a healthy or natural function. In enumerating the symptoms, the *affection of the head* was noticed. "The intellectual faculties were seldom disordered," and even though the giddiness and confusion which might exist, at times occasioned some wandering, a rational answer was always obtained from the patient when she was addressed. "I have known no instance of real delirium, till near the approach of death; and often the mental faculties were clear to the last." The state of the blood is particularly mentioned. It almost invariably exhibited the common marks of highly inflammatory blood. In two cases it was quite in a dissolved state. In one of these the blood was taken very soon after the attack of the disease. Some blood drawn on the following day exhibited the usual appearances. In both of these cases the patients died; and in the one just particularised, one of the lower extremities became mortified before death.

The *termination* of the disease, influenced as it must have been by an infinite variety of circumstances, could not but be very uncertain. At times crisis happened within twenty-four hours. This was most frequently the case when the patient was seen within a few hours of the attack, and the remedies promptly persisted in, and, even if the delay was twelve hours, it was generally cured in two or three days; provided, remarks Mr. Hey, the vigour of the treatment was proportioned to the delay, and the consequent increased violence of the disorder. The disease at times was protracted to a week, and in one case to fourteen days. The fatal termination occurred sometimes in eight or ten days, and in one case not till six weeks after the attack. In general it proved fatal in two or three days, sometimes in twenty-four hours, and one in less than eighteen from the attack. We have thus given a short analysis of the details contained in the work under review, of the symptoms which occurred in the epidemic puerperal fever of Leeds.

The third chapter of Mr. Hey's work is devoted to cases of the disease in question, and the method of cure which he finally adopted, and which he strenuously recommends. The cases amount in all to forty, including those contained in the appendix.* Of eight cases particularly detailed, and six merely

* Dr. Gordon's table gives us seventy-seven cases, of which forty-nine were cured by his method of treatment.

mentioned, eleven died, and but three recovered. This occurred before Mr. Hey had adopted the treatment, afterwards found so successful. Of the remaining twenty-two cases recorded, and in which the liberal depleting plan was tried, only three died, all the rest recovered. In the three fatal cases Mr. Hey satisfactorily shews, "that the method of cure which we now employ, had not a fair trial in any of them, and, consequently, that they cannot justly be considered as instances of its failure."—p. 94. In the latter part of this chapter is contained the method of cure.

The following, in the author's own words, is a summary of the treatment he found so eminently successful in puerperal fever, and which is offered us on the authority of some of the best writers on this disease. "When I was called at an early period, I seldom took away less than twenty-four ounces of blood at first, unless some peculiar delicacy of constitution, or an excess of the previous evacuations, forbade it. And if this delay was protracted to eight or ten hours, or the symptoms were unusually severe, a larger quantity, to the extent of thirty, forty, and in one instance more than fifty ounces, in proportion to the urgency of the symptoms, and the loss of time.

"If the pain and soreness of the abdomen are not removed, or very materially alleviated, in six hours the bleeding ought to be repeated; nor should a considerable degree of faintness or even a deliquium, make us suppose, that further bleeding is either unsafe or unnecessary. In short, I know not from any experience of my own, that scarcely any other limit should be put to the quantity of blood, than the removal, or considerable diminution of the pain; provided all that is requisite, be drawn within twelve hours of the first evacuation. If the disease is clearly ascertained, no other consideration is of much importance. The state of the pulse affords little information, either as to the propriety of bleeding, or the quantity of blood proper to be taken away; and if we are deterred either by the apparent weakness of the patient, by the feebleness and frequency of the pulse, or by any other symptom, from bleeding copiously, we shall generally fail to cure the disease.

"Immediately after the bleeding, the most speedy and effectual means should be adopted for opening the bowels. I usually gave half a dram of jalap, and three or four grains of calomel,

in a bolus; and directed that after a short interval, three table spoonsful of the cathartic solution, (viz. sulph. magnes. one ounce, aq. commun. eight ounces,) should be taken every hour or two, till copious evacuations should be procured. This method seldom failed quickly to excite a diarrhœa, and the solution, which is a good febrifuge, was afterwards continued in such quantity, as might produce an evacuation once in three or four hours. The purging was maintained for two or three days, or longer if necessary; and when the symptoms had entirely subsided, it was suffered gradually to decrease. If the bowels were costive, an injection was often attended with good effect, as it quickly evacuated the contents of the large intestines, and expedited the operation of the purgatives."

If we consult Dr. Gordon's work, so often quoted, and with so much approbation by Mr. Hey, we cannot but be struck with the success that in both of them is stated to have resulted from similar practice. There are however some points of difference in the degrees in which the treatment, recommended by both, was carried, and we shall devote a moment to state them. The first relates to purging. By both of these gentlemen purging was employed as a preventive. With this view, Dr. Gordon was in the habit of employing the same purgative for prevention and for cure, viz. two scruples of jalap with three grains of calomel in a bolus. This was given "the day after delivery, in the morning," and he remarks, p. 100, "all who got it escaped, except one." Mr. Hey remarks, p. 154, "I was the more reluctant to exhibit so large a dose, before the necessity for it was apparent, because I did not feel such confidence in its efficacy, as that author (viz. Dr. Gordon) ascribes to it; since some of the worst cases in my practice occurred, after an excessive operation of the purgative." The next point of difference is with regard to the quantity of blood drawn. Dr. Gordon remarks, "I have both limited the quantity of blood necessary to be taken away, and fixed the time when the taking away of that quantity will certainly cure."—(p. viii. preface). "Thus I found that twenty-four ounces of blood, taken away at one bleeding, within six or eight hours after the attack of the disease, together with a single purgative, never failed at once to cure the puerperal fever."—page 84. Mr. Hey, on the other hand, carries the bleeding plan

to a much greater extent. He does not limit the quantity. In one case, within four hours of the attack, he took away thirty ounces; and in another, thirty-three ounces were taken within five hours. The result of this latter mode of practice, with the concurrence of purging, which was, in the words of Mr. Hey, continued literally *without intermission*, was an actual alteration in the periods of crisis which this disease had been before remarked to observe. Instead of this occurring generally on the *fifth* day, according to Dr. Gordon, "in a very large proportion of my cases, it was completely removed within *two* days."—page 165. The alteration in the period of crisis, or removal of the disease, constitutes of course another point of difference between these authors. The last to be mentioned, is their practice with regard to opiates. "Every night," remarks Dr. Gordon, "I administered an opiate, in order to give a respite to nature, and strength to the patient, to enable her to bear the evacuations which she must necessarily undergo the ensuing day."—page 87. "I frequently (says Mr. Hey) tried opiates in this epidemic, but I think, never with advantage. The respite which they afforded was but an insidious truce; and rather tended to prolong the disease." Again, "I conclude the comfortable repose procured by the opiates, was deceitful; and that the interruption occasioned thereby to the purging, was injurious."

It may not be improper to make a few remarks, on some observations at the close of this volume, on a paper originally published in this Journal, but afterwards re-published in the London Medical and Physical Journal for December, 1814. page 461. In the paper alluded to, are contained two cases of "Puerperal Fever with Diarrhœa." It appears from the writer's remarks on those cases, that he considered them inflammatory diseases. That an attempt at natural resolution was made by means of excessive secretions from the intestinal canal. That the diarrhœa in short very early in the disease (in one case before delivery, in the other very soon after) became a very pressing and alarming *symptom*. In the fatal case, it does not appear that the evacuations were even for a moment checked. The discharges on the contrary were perpetual. The prostration increased by every one that occurred. It does not appear that the pulse rose, that the despondence went off, that the secretions from the

skin, the brown colour of the tongue, were at all altered, or removed by these excessive discharges, on the contrary they appear to have been constantly augmenting till every faculty, every power of living was exhausted.

In the successful case, it would appear that a similar concurrence of facts were about to lead to a similar result. It is true the diarrhœa in this case was spontaneous, while in the former it seemed connected with the effects of a purgative medicine, but every symptom of depression was present, and every one constantly becoming more alarming. The diarrhœa was never checked, and it would appear that opiates and astringents from their total inefficacy at their first exhibition, deserved only the name. The best evidence for the propriety of the practice may perhaps be obtained from the fact that the perpetual diarrhœa brought with it no relief. If the analogy be not too forced it may be said, that it appears in these cases, that inflammation by another mode of resolution, but such as the structure and functions of the organs in which it existed, was most favorable to, was effecting what occurs in some cases of extensive ulceration. The watery discharges were inducing all the effects in these cases, with more rapidity however, than excessive purulent ones do in those cases. If we cannot entirely agree with Mr. Hey in his doubt, "whether even in the successful case the purging would not sooner have been moderated by laxatives, than by opiates and astringents," we concur with him in the opinion of the efficacy of emetics and blisters in the successful case. The author of the paper alluded to may find some satisfaction in Mr. Hey's own practice, viz. in his ninth case, in which on the second day of the disease, "as his patient had had several more loose stools, thirty drops of tinct. opii were added to one portion of her saline draught," and that it was repeated on the twenty-second.

We will dwell for a moment longer on what has just been said on the beneficial effects of emetics and blisters in the successful case above alluded to. Mr. Hey's remark is as follows: "yet I cannot but doubt ***** whether the cure might not be attributed to the copious evacuations, the blister and emetics, rather than to the medicines which were given to restrain the diarrhœa." We have expressed our decided opinion of the efficacy of

emetics and blisters in puerperal fever, in our concurrence with the author on this subject declared above. In the general remarks of Mr. Hey however, on these remedies, we find the following. We quote them, not with a view to detect an inconsistency, but to bring forward the evidence on which the opinions are founded, as contained in the author's cases; and that we may more fully state our own experience and opinions. And first, of blisters. "Blisters (says Mr. Hey, p. 166.) are inconvenient, and will seldom be necessary; but I have sometimes thought them useful, and never detrimental, except the disease be advanced to the last stage; when they can only add to the general irritation, without any prospect of success."

From an examination of the cases detailed, we find, that a large blister was ordered in the 8th case to be applied to the abdomen, and a purgative exhibited. This was ordered at 1 o'clock in the morning of the 14th February. The patient was again visited at half past two P. M. of the same day. By mistake the blister had been applied to the back instead of the abdomen. It was removed. The night of the 15th was comfortable. The patient did well, and from the 22nd suffered no relapse. In the 9th case a blister was applied to the abdomen, twenty-one ounces and a half of blood were taken at five bleedings, cathartics, saline draughts, &c. were also exhibited. From the 18th to the 24th June, she had done well. A remarkable metastasis, as it appeared to Mr. Hey, of the disease, took place to the head, and the patient expired on the 1st of July. Case 12th, a large blister was applied to the abdomen, after the 2nd bleeding, but on the first day of the disease;—the woman recovered. Case 13th, "Blisters, anti-emetics, &c. were tried in vain;"—the woman died. Case 15th, Blister to the abdomen;—the patient was bled, purgatives given;—the woman died at the end of six weeks. Case 19th, Bleeding to 37 ounces at 3 bleedings, blister to the abdomen, purgatives;—the patient recovered.

Thus in six cases, out of thirty particularly detailed and six barely mentioned, blisters were applied by Mr. Hey. Of these six, three recovered. In one, after doing well from the 18th to the 24th June, a relapse, attended with anomalous and violent symptoms, supervened, and the patient was cut off. In one, (13th) blisters and anti-emetics were used, but the woman died:

In the last fatal case in which a blister was applied, the disease was protracted six weeks.

From all these facts, the author's own evidence does not appear very conclusive against the use of blisters. These were doubtless the cases which led him to consider them sometimes useful. We cannot but regret that he had not more freely availed himself of them in those cases, which terminated so unfortunately before he adopted the practice he afterwards found so eminently useful. We have used blisters freely in cases of puerperal fever. We have not experienced inconvenience from their application. We have thought them a powerful auxiliary. It has not been our misfortune to encounter the disease in question in its most formidable character, that of an epidemic. When it has occurred to us, we have met it with the remedies of inflammation; and have used them with that perseverance, which an inflammatory disease in such important organs, demands. Among these remedies, we would repeat, we have ever placed blisters.

Secondly, of Emetics.—On the subject of Emetics, Mr. Hey furnishes us with no decided or rather intentional evidence of their utility in puerperal fever. At page 126, case 20th, we found this remark; "For a while after the vomiting she was comfortable and easy." The patient had at this time lost forty ounces of blood at two bleedings. The pain however returned after the second bleeding, and vomiting occurred,—the consequence of a very mild antimonial, and cathartic draught. The antimony was not contained in the draught, and disease enough occurred to make it necessary to detract thirty more ounces of blood, making in all seventy. The patient recovered. In some of the cases vomiting occurred spontaneously, from sympathy most probably, but in such stages of the disease as to preclude all hope or possibility of benefit from it. In the General Remarks, contained in the 4th chapter, p. 200, the emetic method of curing the disease so highly recommended by Mr. Doucet is particularly mentioned. The author is at a loss to account for the almost universal condemnation this method has met with, by authors on the subject. "Perhaps," he says, "it has never been fairly put to the test in this country," viz. England. "The only one," viz. Dr. Walsh, he continues, "who has written in its favour, though his treatment was attended with "uninterrupted

success," had probably seen little of the disease in its epidemic form." If we now turn for a moment to p. 181 of Mr. Hey's work, we find that he says of the disease, "all its varieties, so far as I can judge from my experience and reading, may be reduced to two denominations, the *sporadic* and *epidemic* Puerperal Fever; in which I include inflammation of the uterus and peritoneum. "I am persuaded that no other distinction is of any real practical importance. Nor is this of any further consequence, than that the epidemic disease requires more prompt attention, and more vigorous treatment. The means of cure are precisely the same in both; but in the latter their measure is greater and less limited, and the period within which they must be employed is far more circumscribed." If this be true, we cannot but regret that Mr. Hey, particularly in those cases in which he was in truth without a remedy, did not make a trial of the method of Mr. Doulcet. We also confess we do not think his remark conclusive against Dr. Walsh. Doulcet tried emetics when the disease was *epidemic*, at the Hotel Dieu. Dr. Walsh's evidence is therefore not less satisfactory because his were *sporadic* cases. Supposing the emetic plan under appropriate circumstances equally successful with the bleeding, Mr. Hey thinks the latter should be preferred, since "the efficacy of the emetic one, (says Mr. Doulcet,) consists wholly in its early application, namely, in the very moment when the disease first commences." This however, though it should prevent us trusting wholly to it, except in the very first onset of the disease, by no means militates against its being an auxiliary, nay, a very powerful one to bleeding. The case quoted above, from Mr. Hey's own book, in which vomiting accidentally occurred, but with decided benefit, bears strong evidence in favour of the use of emetics, Mr. Hey however in the last paragraph of his work says, "on summing up the evidence on both sides of the question, with regard to the period of the disease, at which they will respectively prove efficacious, acknowledges of the latter, viz. emetics, "I have no experience, and can therefore say nothing." For ourselves we as freely acknowledge, that we have tried emetics, with other remedies; and that early in the disease we have tried powerful emetics alone, and conclude that our experience authorises us to say that by the latter method we believe that we have cut short the disease, and that by the former we have very much lessened its violence and danger.

In the fourth chapter are contained general remarks on puerperal fever. In this chapter we are presented with an able and liberal discussion of the subject of the nature of this disease ; and from the various authorities on the subject, and from experience, the author is decidedly of opinion that puerperal fever is an inflammatory disease, and that in its *epidemic* form it requires much larger bleeding than the *sporadic*, or as it has been called, the true inflammatory puerperal fever. p. 189.

We cannot but express some regret that while on the chapter of cases our limits have allowed us no room to analyse them.— For in the cases are contained valuable, and accurate details of all that variety in symptoms, which ever characterises a widely extended epidemic. We should regret it the more if these varieties of symptoms had constituted varieties in the kinds of the disease, and had required and received different treatment. So far from this however, every (apparently the most opposite) occurrence was successfully met by the treatment we have so fully detailed ; and it is left to future practitioners to employ it boldly and fully, with the assurance of experience, that it will be successful where success can be hoped.

The next question discussed is that of the *seat* of puerperal fever. From all that is said, the author concludes “ that a genuine puerperal fever may arise from an inflammation of the uterus, as well as from inflammation in other parts of the abdomen ; and that a variety in the part which is primarily affected, does not essentially affect the character of the fever.” p. 195. Whether puerperal fever be contagious or not, are the last questions agitated by the author. As far as his experience goes, it does not furnish any additional proof of its being contagious. Although extremely cautious on the subject, it may we think be inferred from what Mr. Hey says, that he is by no means satisfied that it is a contagious disease. We cannot take a final leave of this work, without expressing the satisfaction with which we have read its pages. It furnishes the most powerful confirmation, to what we have ever considered the most rational method of treating this, and all inflammatory diseases. We cannot give it higher fame among us, than to place it next to the original, admirable treatise of Dr. Gordon.

A Practical Treatise on Hæmoptysis, or spitting of Blood : shewing the safety and efficacy of Emetics, and the pernicious effect of Blood-letting, in the treatment of that Disease. By George Rees, M. D. Member of the Royal College of Physicians, Senior Physician to the London Dispensary, &c. &c. p. 48. London, 1813.

THIS short work is dedicated to a baronet. The author represents himself to have long enjoyed large opportunities for bringing his opinions to the test of fair and frequent experiments. The author in his preface writes with confidence, and if he does not carry conviction wherever his work goes, it will not be that the sunshine of his own faith in the treatment recommended, is clouded by a single doubt. "Having seen great and irreparable mischief produced by the use of the lancet in cases of hæmoptysis, I feel it a duty, as far as lies in my power, to check the progress of a practice, that I know to be prejudicial; and this I have endeavoured to do, first, by shewing that the nature of the disease has not been well understood, that hæmoptysis is a passive hæmorrhage, not at all connected with increased vascular excitement, and not in the least relieved by lowering the strength, or lessening the quantity of blood in the system; that the subjects of the disease are generally the weak, the scrophulous, and the consumptive, to whom bleeding is at all times injurious and often fatal; and secondly I have endeavoured to enforce these observations by an appeal to facts and experience." page vi. preface. Before we state these facts, and appeal to this experience, we will occupy a moment in giving some account of the work itself.

The frequency of the disease; the remedies usually employed; and the incorrectness of the prevailing theory of hæmoptysis, are first mentioned; and an attempt made to prove that this affection is not an active hæmorrhage. We have following this, a description of the disease, and are under this head informed that "the quickness of the pulse under hæmoptysis is the effect, not the cause of it." The next article treats of its cause, and the *modus operandi* of remedies. Purging and blistering are particularly mentioned, and we are informed how they differ in their effect on the constitution from bleeding; and are made acquainted with

some other notions peculiar to the author. Next in order is the medical treatment of hæmoptysis and the effects of emetics. This head contains some very interesting opinions and facts. We are told that should hæmorrhage be accompanied even with pain in the side, and very acute pain too, but that the patient be delicate, of a florid complexion, much addicted to perspiration from the forehead and palms of the hands, and especially if such a person has been placed in a damp situation, whatever may be the violence of the pain, bleeding should not be recommended. The symptoms now stated, according to the author, contraindicate bleeding, and he has found them yield to a blister, a liniment or a fomentation to the side, aided by large doses of pulvis doveri. Before we pass from this part of the work to the peculiar treatment it proposes, we may ask, suppose hæmorrhage occur in a person not very delicate; who does not sweat so profusely; who has acute pain in the side, and this pain violently exasperated by cough; shall we trust him to pulv. doveri, to a blister or liniment;—and to complete the inquiry, shall we even depend on an emetic? Dr. Rees informs us, that the remedies of all others he has found the best in hæmorrhagy, are emetics. Not nauseating doses of medicine, but such as produce full and perfect emesis. He has never found the hæmorrhage increased by these remedies, on the contrary, he has found them to be checked, and the periods of their recurrence either entirely put a stop to, or the intervals sensibly increased between them. The kind of emetic is mentioned. When the bleeding was very alarming, half a dram of sulph. zinci was given. When the bleeding was less urgent, one grain of tart. antimonii, to one scruple of ipecacuanha were given. From all the author has observed on the subject, this combination of ipecacuanha with tartrate of antimony, or such a one as is adapted to the case, he has ascertained to be the most eligible of any.

At page 25, we have the following important query made. "Are emetics safe and beneficial, or are they not?" Instead of a categorical answer to this important question, the author prefers the language of his own experience, and that of very respectable authorities which are satisfactorily quoted. From both of these sources we receive an affirmative reply. Thus Dr. Bryan Robinson, in his *Observations on the Virtues and Operations of Medicines*, furnishes him with sixteen cases of hæmoptysis, in

which emetics were employed. In one of these cases, the patient "was made to vomit once a day for a whole year, and ordered to drink asses' milk, claret, and meat for dinner, under which plan he gathered strength and flesh; but going afterwards to Paris, and the bleeding returning, "to check the discharge, (says Dr. Robinson) the physicians ordered small and repeated bleedings with pectoral drinks, which had no other effect than to weaken him, and in a short time he died." This is an interesting case in point; and there are others which our limits will not allow us to quote. Dr. Rees feels a perfect confidence in the truth of these statements, and his own experience has tended to confirm the propriety of the practice. His success has led him in strong and decided terms to recommend it, and has sharpened his severity when discussing the opposite practice.

"That there is no room (he remarks) for accusing the writer of falsehood or exaggeration, my own experience abundantly certifies. I have in upwards of forty cases pursued the same plan with very considerable success, not merely with patients who have been exclusively entrusted to my care, but in co-operation with other medical friends, who have witnessed the good effects of the treatment, and to whom I may refer those who are so sceptical as to question the sufficiency of the evidence I may bring forward." There is much in this statement, and this appeal, of laudable enthusiasm, and willingness to be distrusted if any want of evidence exists with regard to the practice recommended in hæmoptysis. We know not if medical friends have appeared to sanction this practice, or more timid ones to express doubts of its correctness, we only mean now to state the experience and opinions of the author himself. The first case is detailed at some length, but was found decisive of the correctness of the treatment by full vomiting. Some measures were adopted after the suppression of the bleeding to allay the cough, and to restore the strength. This case was related to the London Medical Society, to provoke discussion and animadversion, "but nothing was brought forward that could discourage the repetition of the same remedies." The emetic used in the above case was antim. tart. one grain, pulv. ipecac. one scruple.

In the next case the bleeding returned three or four times in the course of the year, after having been treated by a Dr. S. in the country, by venesection, blisters, low diet, &c. &c. Dr.

Rees saw him a few days after the last attack, he gave the emetic mentioned above, it operated mildly, brought off a quantity of phlegm, but no blood. He now got a blister to his side, took an anodyne, tonic mixture, eat meat for dinner, and drank half a pint of porter with his meal. He was much better for this treatment. But fancying, ten days after this, that the mucus from the trachea was a little tinged, the emetic was repeated. He had no return of the bleeding after taking the first emetic. This patient was seized with the bleeding without any particular exciting cause that he could call to his recollection. In the remarks which follow this case, the author states that the effects of coughing and vomiting bear not the least resemblance to each other. "Coughing acts so directly on the seat of the disease, and occasions such a concussion of the chest, that it is not at all to be wondered at, if it should bring on a relapse." "Vomiting does not produce this effect, nor does it, as some suppose, occasion an increased determination of blood to the lungs. In making this assertion, I am supported by the authority of Dr. Thomas Reid, who, speaking of the rupture of a blood-vessel in the chest from vomiting, says, 'We know that there is not the smallest danger of this accident happening, because there is no stress upon the vessels of the lungs, little or no blood passing through them in the action of vomiting.'"

Seven cases are detailed by the author. We have not room to give them place in this review. They all however tend to support the practical inference from the whole work, and to authorize the title which it bears, viz. *A Practical Treatise on Hæmoptysis*, shewing the safety and efficacy of Emetics, and the pernicious effect of Blood-letting, in the treatment of that disease.

The author has certainly added something to the evidence previously existing in respect to the use of emetics in hæmoptysis; but as to bleeding, we find it difficult to admit opinions contradicted entirely by our own experience. This experience may have been less extensive than that of Dr. Rees, but so far as it goes, it has satisfied us of the advantage of blood-letting. We have indeed believed that the cures thus effected are more radical than any others. As to failures in cases of this affection we doubt whether any of the faculty are exempted from them.

INTELLIGENCE.

DR. WILSON PHILIP, of Worcester, England, was last summer engaged in a set of experiments, an account of which will soon be laid before the public ; made with a view to ascertain the principle on which the action of the heart depends, and the relation which subsists between that organ and the nervous system.

From these experiments, we are informed, it appears, that M. le Gallois was deceived in his inferences from the experiments repeated by him before a committee of the National Institute at Paris, and published under its sanction.

The following, we understand, are the principal inferences afforded by Dr. W. Philip's experiments.

When the power of the muscles of voluntary motion is destroyed, in order that their action may not disturb the motion of the heart, this organ is distinctly seen to obey the power of both stimulants and sedatives, applied either to the brain or spinal marrow.

The heart obeys the same laws with the muscles of voluntary motion, the only difference between them arising from their being fitted to obey different stimulants. The power of both is independent of the nervous system, yet capable of being influenced through it, and that to such a degree as to be nearly destroyed by great injuries of this system. Hence the brain and spinal marrow may be removed, without impairing the excitability of any muscle ; but the excitability of all may be impaired by powerful agents applied to these organs.

The circumstance which misled M. le Gallois appears to have been, that, in his experiments, he *removed* the brain, but *crushed* the spinal marrow, by forcing into the spine a stilet of exactly the same size with its cavity. When Dr. W. Philip reversed the experiment, the result was reversed. Both in warm and cold-blooded animals, he removed the spinal marrow without affecting the action of the heart ; but found its power almost destroyed by crushing the brain. It is evident that these conclusions, if the experiments on which they rest are correct, tend to

establish laws of great importance in the animal economy, which have hitherto escaped physiologists. By comparing his own experiments with those of former writers, Dr. W. Philip, we are informed, has been led to the following conclusions, That in the more perfect animals, there are three vital powers, having an existence not immediately dependent on each other, the sensorial, the nervous, and the muscular powers ; yet so connected, that the muscular is influenced through the nervous system, and both of these through the sensorial system.

Edinburgh Med. and Surg. Journal.

On the effects of bleeding in a case of Hydrophobia from the bite of a rabid dog.

THIS case, a man aged thirty-eight, is detailed at length in a very interesting little pamphlet, by Rice Wynne, Esq. apothecary, Shrewsbury, England. The symptoms of hydrophobia were very strongly marked. They are such as are met with in the most decided cases, and the success of full and prompt bleeding strikingly displayed.

"I had recourse," says Mr. Wynne, "to the abstraction of twenty ounces of blood, taken from a *large orifice*, and the time of taking it did not exceed *six minutes*. He fainted, and remained for an hour with scarcely a perceptible pulse, and it was evident the whole time his disease was abating. His countenance became more composed, and much paler ; his eyes were less inflamed ; the convulsions ceased ; and when recovering from his faintness, his first request was that he might be allowed to drink some water, and when it was brought to him he seemed to enjoy it." A pill, composed of one grain of opium, three grains of the sub-muriate of mercury, and one grain of James' powder, was given every three hours. The disease commenced Friday morning. The bleeding was done at about one o'clock, P. M. Monday. Tuesday morning, at seven, Mr. Wynne again saw his patient. He had been calm ; had drank coffee and balm tea, "but he had an aversion to them ; it still hurt him to swallow." Urine natural in quantity, but high coloured, and without sediment. Had slept a little at intervals, but was harassed by dreams. His symptoms were now evidently aggravated. He was partially convulsed. "He started at the slightest sound or motion, and

his sense of hearing was morbidly acute." Pulse 80; countenance flushed. "I considered it necessary (says Mr. Wynne) to repeat the bleeding, (the blood in neither instance appeared buffy,) and when about ten ounces were taken, he fainted; his pulse was again scarcely to be felt. He continued in this state for about half an hour, and he was perfectly free from convulsion." Slight complaints from this time only occurred, and he recovered perfectly well. The part bitten being sore on pressure, mercurial ointment was rubbed on it. The mouth became sore, and it remained so for nearly three weeks. The medicines were continued for nine days. A case is mentioned in which bleeding was not successful in hydrophobia. In this case however the patient *did not faint*, though forty ounces of blood were taken at one bleeding. He was again bled. During the second bleeding, the pulse was scarcely discernable, but this was not three quarters of an hour before the patient died. This case of course is not conclusive against bleeding. The truth is the indication for bleeding, let it be what it may, was not at all answered. See the valuable cases, contained in a former number of this Journal, of Mr. Tymon, and Dr. Shoolbred, who, in the East Indies, first gave us a remedy for the hydrophobia.

The importance of bleeding from a *large orifice*, and detracting the requisite quantity of blood in all cases in which bleeding is indicated in the *shortest space of time*, is stated by Mr. Wynne, on the "high and able authority of Dr. Christopher Robert Pemberton."

Boylston Prize Questions.

THE *Boylston Medical Committee*, as chosen by the Corporation of Harvard College, December 19th, 1815, consists of the following physicians:—David Townsend, Thomas Welsh, Aaron Dexter, John Brooks, Josiah Bartlett, William Spooner, John G. Coffin, James Jackson, and John C. Warren.

At a meeting of the Committee in Boston, January 8th, 1816, it was

Voted—That the following subjects be proposed for the Prize Questions, for the present year, namely:

1. Is there any communication from the stomach to the bladder more direct than that through the circulating system and the

kidneys? On this subject, the Committee will consider the merit of the dissertations as depending, in a great measure, on the experiments they may relate.

2. On the vegetable articles, the growth of the United States, which have, or may be, advantageously employed as emetics, or cathartics.

The author of the best dissertation on each question, will be entitled to a premium of fifty dollars in cash, or to a medal of that value. The several dissertations must be transmitted, post paid, to *David Townsend*, M. D. of Boston, on or before the 31st of December, 1816. *No dissertations can be received after this day.*

Each dissertation to be accompanied with a sealed packet, on the outside of which shall be written some device or sentence, and on the inside of it the author's name and place of residence.

The same device or sentence is to be written on the dissertation to which the packet is attached.

No dissertation can be read which has the author's name affixed.

All unsuccessful dissertations are deposited with the secretary of the Committee, from whom their authors can obtain them.

All the sealed packets which are not called for in one year, will be destroyed in presence of the Committee, without being opened.

J. G. COFFIN, *Secretary.*



OBITUARY.

DIED at Philadelphia in December, 1815, BENJAMIN SMITH BARTON, M. D. Professor of the Theory and Practice of Physic, and of Natural History and Botany, in the University of Pennsylvania, Æt. 49. Dr. Barton has long been known as an able teacher and zealous promoter of science in the Philadelphia school. The department to which his labours were devoted during the most active part of his life, was that of the materia medica, besides which he gave annually distinct courses on the other branches of his professorship. After the decease of Dr. Rush, Dr. Barton was appointed to succeed him as professor of the theory and practice, and it may be considered as a striking

proof of his scientific ardour, that he undertook the preparation of a new course of lectures, at a period of life somewhat advanced, and when encumbered with numerous cares and engagements. His labours in this new department were exerted but a single season, and death has deprived the community of the advantages which might have resulted from his talents and zeal in this important branch of instruction.

The mind of Dr. Barton was ardent, persevering and ambitious. The walks of science in which he trod were numerous, yet in each of them he has left something to commemorate his name. Perhaps the variety of subjects at which he grasped was too great for the leisure and opportunities which he was able to command, amid ill health and professional duties. It is probably on this account that the public have to lament the want of most of the great works which he had announced or undertaken. Had he lived to fulfil his scientific promises, he would justly have been ranked among the brightest ornaments of our country.

Dr. Barton has left an useful elementary treatise on botany, a work on the materia medica of the United States, and numerous tracts and papers on subjects connected with his favourite pursuits. He has left in the minds of his pupils a grateful remembrance of his personal attentions, and a just estimate of the importance of his services.

The successive loss of two of its most distinguished professors must be heavily felt by the Philadelphia school; and the death of men who had contributed largely to the scientific reputation of the country, may be looked on by the public in the light of a national calamity.

DIED, on the 4th of February, aged 52, JOHN FERRIAR, M. D. senior physician of the Manchester Infirmary. The eminent rank which he held in his profession, not only in that town and its immediate neighbourhood, but through a widely extended district of the surrounding country, was founded on long and general experience of the efficacy of his counsels. He was endowed by nature with an acute and vigorous understanding, which he had matured by a life of diligent study, and of careful and well-digested observation, into a judgment unusually correct and prompt in its decisions. The purposes of his sagacious

mind were pursued, also, with a steadiness of determination which generally secured their accomplishment; and unexpected difficulties, in the treatment of diseases, he encountered with firmness, and with great fertility of invention. As a professional author he had obtained a high station, and the world is indebted to him for a large fund of valuable knowledge, conveyed in a style, which, for perspicuity, and for manly strength and simplicity, deserves to be proposed as a model to medical writers. His character as a polite scholar will be preserved, in the literary annals of his country, by writings, in which he has displayed correct taste, extensive and various reading, and original views of the subjects of his investigations. In the relations of private life he will long be remembered as a man of inflexible honour and integrity; a faithful and steady friend; and a tender and most indulgent parent.

W. H.

Edinburgh Med. and Surg. Journal.

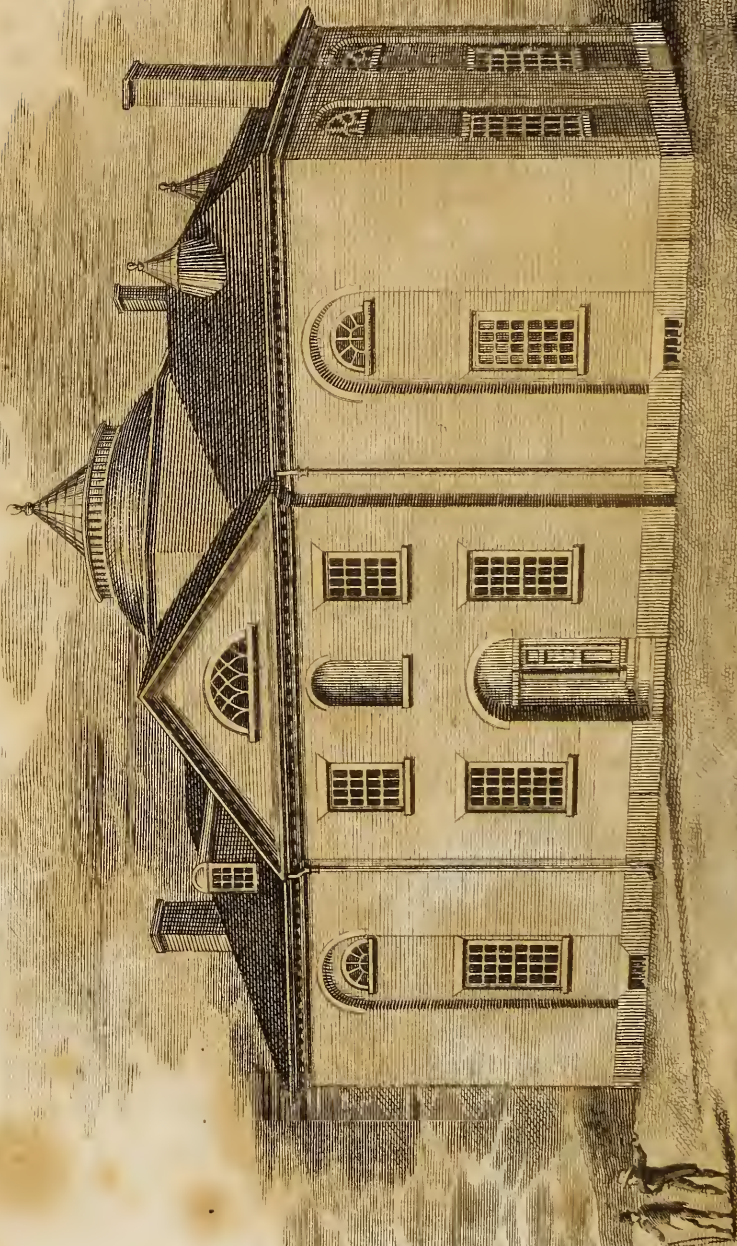


INTENDED PUBLICATIONS.

SPEEDILY will be published, in two vols. 8vo. *The Institutes and Practice of Medicine*, founded on the basis of Anatomy, healthy and morbid; and on the well known laws of the animal economy. By **LYMAN SPALDING**, M. D. President of the College of Physicians and Surgeons, of the University of New York; for the western district.

WILL soon be prepared for the press, a new medical work, entitled, *American Domestic Medicine*; or a simple method of prevention and cure of diseases, according to the latest improvements and discoveries, both in Europe and the United States; comprising the principles of modern practice, adapted to the use of families, and medical practitioners. To which will be annexed, an Appendix, containing in the form of a dispensatory, an account of those simple and compound substances, commonly employed in medicine, but more particularly in the United States, with the virtues and uses of each. By **JAMES THACHER**, M. D., A. A., M. M. S. author of the *American New Dispensatory*, and *Observations on Hydrophobia*.





MASSACHUSETTS MEDICAL COLLEGE.

J. R. Penniman Del.

W. B. Austin Sc.

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SOME ACCOUNT OF HARVARD UNIVERSITY, IN
CAMBRIDGE, MASSACHUSETTS.

HARVARD University is the most ancient and the best endowed of any scientific institution in the United States. It has flourished without interruption for nearly two centuries, during which time it has gradually gathered strength from the patronage of government, the munificence of individuals, and the uniform respectability of its character and administration. It has been enabled to hold out extensive means of affording instruction, and to exact higher qualifications from its students, than any other American seminary. The number of its students, which within a few years has been augmented about one third; the requisites for admission and the course of studies, which have been greatly elevated during the same period; the late repeated endowments from public and private liberality; the increased number of offices and departments of instruction; the erection within a short time of four extensive and commodious additional edifices; the important acquisitions of books, apparatus, and specimens relating to the physical sciences; are circumstances sufficient to shew the prosperity and flourishing state of this institution.

Harvard University derives its name from the Rev. JOHN HARVARD, its earliest benefactor, who in 1638 bequeathed half

his estate, amounting to nearly 800 pounds sterling, for the endowment of the College. The names of the subsequent benefactors of the institution are attached to the professorships, buildings, or other fruits which have resulted from their munificence.

PROFESSORSHIPS, FOUNDATIONS, &c.

Most of the professorships are established on foundations given for the express purpose by individuals, or appropriated from the funds of the University. From the income of these foundations the professors principally derive their salaries. The other departments of instruction are supported by periodical assessments on the members of the college.

The *Hollis Professorship of Divinity*, was founded by Thomas Hollis, Esq. of London, by donation, in 1722. The professor gives lectures, and attends exercises of the students.

Hollis Professorship of Mathematics and Natural Philosophy, by the same gentleman in 1726. The professor has charge of the philosophical and astronomical apparatus, and gives lectures and exercises.*

Hancock Professorship of Hebrew and the Oriental Languages established by the Hon. Thomas Hancock of Boston, by will, in 1764. Lectures and exercises by the professor.

Boylston Professorship of Rhetoric and Oratory, founded by Nicholas Boylston Esq. of Boston, by will, in 1772. The professor inspects the compositions of the students and attends their public declamations.

Massachusetts Professorship of Natural History, established by subscribers to a fund in Boston and elsewhere in 1805. The professor resides at the Botanic garden, and gives lectures to the students.

Hersey Professorship of Anatomy and Surgery, founded by Dr. Ezekiel Hersey of Hingham, and others, in 1783. The professor has charge of the Anatomical Museum and gives lectures in Cambridge to the students, and in Boston to the Medical class.

Hersey Professorship of the Theory and Practice of Physic, by Dr. Hersey and others in 1783. Lectures given in Cambridge to the students, and in Boston to the Medical class.

* In exercises or private lectures a professor examines the class in a classic or text book, giving such illustrations as he sees fit.

Erving Professorship of Chemistry and Mineralogy, by William Erving, Esq. of Boston and others, in 1783. The professors have charge of the Laboratory and Mineralogical cabinet and give lectures in Cambridge and Boston.

Royall Professorship of Law, by Hon. Isaac Royall of Medford, in 1773. The professor gives lectures in Cambridge to the senior class and graduates.

College Professorship of Metaphysics and Ethics, partly on an annuity from West Boston bridge by act of the Commonwealth in 1810. The professor gives exercises and superintends the forensic disputations.

College Professorship of the Greek Language, by College law 1811. Exercises by the professor.

College Professorship of the Latin Language, by College law 1811. Exercises by the professor.

A Professorship of Greek Literature, by a donation from an unknown individual in Boston, in 1815. The present professor is on his travels in Europe and Modern Greece.

Smith Professorship of the French and Spanish Languages, by Abiel Smith, Esq. of Boston, by will in 1815. Professor not yet appointed.

Lectureship of Materia Medica and Botany, established 1815. Lectures given in Boston to the Medical class.

Lectureship of Midwifery, established 1815. Lectures given in Boston to the Medical class.

The Professor of Law and the Medical Professors and Lecturers reside in Boston. The rest of the officers at Cambridge.

For the remaining departments of instruction and government, see the list of officers.

There are various other funds devoted to specific purposes, some of which are suffered to accumulate until sufficient for the proposed object; the interest of others is annually appropriated agreeably to the intentions of the donors. These are,

Dexter fund. The late Hon. Samuel Dexter bequeathed \$5000, to promote the critical knowledge of the scriptures.

Alford fund. By the executors of the will of the late Hon. John Alford of Charlestown, to establish a professorship of moral philosophy when sufficient.

A townships of land. By Samuel Parkman, Esq. of Boston, towards endowing a professorship of Christian Theology, to have special charge of the resident graduates.

Bowdoin premiums. Not less than \$100 per annum, by the late Governor Bowdoin, given in four premiums, or more, to members of the college, authors of the best dissertations on subjects annually proposed by the corporation.

Boylston premiums. Of these an account is given under the Medical department.

Endowments for the support and assistance of students. The *Hopkins fund*, by Edward Hopkins, Esq. of Great-Britain, together with legacies of Mr. Pennoyer and Mrs. Saltonstall, give about \$1000 per annum, to be divided among ten resident graduates, students in divinity. Mr. Hopkins' legacy also provides \$70 per annum to be distributed in *books* to meritorious students.

Exhibitions, or gifts provided for by Lieut. Gov. Stoughton, Rev. W. Brattle and others, amount annually to about \$750. Of the late liberal donation of the State of \$10,000 per annum for ten years, one quarter is devoted for assisting the education of meritorious students, a part being annually distributed; the rest funded. Thirty students save the expence of board by services rendered in the hall.

REQUISITES FOR ADMISSION AND COURSE OF STUDIES.

Candidates for admission into the University are now required to be well versed in the whole of Arithmetic, in Ancient and Modern Geography, in the grammar and prosody of the Latin and Greek languages, to be able to translate English into Latin, and to construe and parse any portion of the following books, viz. Dalzel's *Collectanea*, *Graeca Minora*, the Greek Testament, Virgil, Sallust, and Cicero's *Select Orations*; also to produce a certificate of their correct moral character, and to give bonds in the sum of four hundred dollars for the payment of their quarter bills.

The time of residence at the University, except for those who enter at an advanced standing, is four years; during which time they study the Greek and Latin Classics, the French or the Hebrew language, The English language, Rhetoric and Belles-Lettres, History and Antiquities, Logic, Metaphysics, Moral and Political Philosophy, Theology, Algebra, Geometry, Trigonometry and the higher branches of Mathematics, Natural Philosophy, Astronomy and Chemistry.—Exercises or recitations

in all these branches are given by the instructors, and a punctual attendance on them required by law. Written themes upon subjects given out by the Professor of Rhetoric, public declamations, and forensic disputations are also regularly required.

Public lectures are given by the professors, either to the whole college, or to the upper classes only, according to the nature of their subjects. These are upon Rhetoric and Oratory, on Philology, on the Oriental languages, on Natural Philosophy and Astronomy, on Divinity, on Sacred Criticism, on Zoology, on Botany, on Chemistry and Mineralogy, on Anatomy and Surgery, on Medicine, and on Law.

The students have regular hours of study and of recreation. Gymnastic exercises are authorized, and a military corps is kept up in the two upper classes, the members of which become perfect in the manual exercise. An attendance is also permitted on such teachers of polite accomplishments as are approved by the college government.

EXHIBITIONS.

Public exhibitions take place three times a year, and consist of performances by such members of the two upper classes as are selected for their merits, by the government. They are delivered in the college chapel, in presence of such citizens and strangers as may attend.

COMMENCEMENT.

This anniversary takes place on the last Wednesday in August. At this time the degrees are conferred, and public performances delivered by the bachelors and masters of arts. These exercises are attended by the Supreme Executive and other officers of the Commonwealth, by citizens and strangers of distinction, and by a numerous and fashionable audience. A custom of ancient date has rendered this anniversary a day of parade and festivity both in Cambridge and Boston.

NUMBER OF STUDENTS.

The whole number of graduates at the College since its foundation is 4509. The present members, exclusive of the Medical Class in Boston, are as follow :—Seniors, 57 ; Juniors, 66 ;

Sophomores, 91 ; Freshmen, 65 ; Resident graduates, 19. Of these a certain portion resort here from a considerable distance, and among them may be observed the names of many of the most distinguished families in the southern states.

PRESENT OFFICERS OF THE UNIVERSITY.

REV. JOHN THORNTON KIRKLAND, D. D., LL. D. *President.*

AARON DEXTER, M. D. *Professor of Chemistry.*

WILLIAM D. PECK, A. M. *Professor of Natural History.*

REV. HENRY WARE, D. D. *Professor of Theology.*

HON. ISAAC PARKER, LL. D. *Professor of Law.*

LEVI HEDGE, A. M. *Prof. of Logic, Metaphysics and Ethics.*

REV. JOHN S. POPKIN, D. D. *Professor of the Greek Language.*

REV. JOSEPH MCKEAN, LL. D. *Prof. of Rhetoric and Oratory.*

JAMES JACKSON, M. D. *Prof. of Theory and Practice of Physic.*

JOHN C. WARREN, M. D. *Professor of Anatomy and Surgery.*

SIDNEY WILLARD, A. M. *Professor of the Oriental Languages.*

JOHN GORHAM, M. D. *Adjunct Professor of Chemistry.*

LEVI FRISBIE, A. M. *Professor of the Latin Language.*

JOHN FARRAR, A. M. *Professor of Mathematics and Natural Philosophy.*

ANDREWS NORTON, A. M. *Lecturer on Sacred Criticism and Librarian.*

JACOB BIGELOW, M. D. *Lecturer on Materia Medica and Botany.*

WALTER CHANNING, M. D. *Lecturer on Midwifery.*

REV. EDWARD EVERETT, A. M. *Professor of Greek Literature.*

JOSEPH G. KENDALL, A. M. *Registrar, and Tutor of Geometry and Natural Philosophy.*

ALLSTON GIBBS, A. M. *Tutor of Geometry and Nat. Philosophy.*

JONATHAN M. WAINWRIGHT, A. M. *Instructor of Rhetoric and Oratory.*

JOHN BRAZER, A. B. *Tutor of the Latin Language.*

FRANCIS JACKSON, A. M. *Proctor.*

SAMUEL GILMAN, A. M. *Proctor.*

HENRY WARE, A. M. *Assistant Librarian.*

CHARLES FOLSOM, A. B. *Regent.*

THOMAS SAVAGE A. B. *Proctor.*

JAMES WALKER, A. B. *Proctor.*

NICHOLAS FAUCON, *French Instructor.*

OF THE COLLEGE BUILDINGS.

The College edifices, eight in number,* are pleasantly situated in Cambridge, about three miles from Boston. They stand on an inclosed plain of fourteen acres, around which, except in front, a thicket of forest trees is planted. They are half a mile from the banks of Charles River, and immediately contiguous to the extensive common of Cambridge. Three of these buildings are appropriated to public purposes; the rest are occupied for lodging rooms by the students. Most of them bear the names of different benefactors of the college. They are as follows:

UNIVERSITY HALL. This is an elegant and spacious edifice, built in 1814, entirely of the Chelmsford granite, the colour of which approaches nearly to white. It measures 140 feet by 50, and is 42 feet in height. Its dimensions exceed those of any of the other buildings, and its style of architecture is chaste and ornamental. It contains a handsome chapel for the purposes of worship, and of literary exhibitions; six rooms for lectures and recitations; two rooms for occasional public purposes; four dining halls, and two large kitchens.

HARVARD HALL. This is of brick, and was built in 1765. It is 108 feet by 40, and 38 feet to the roof. It is surmounted by a cupola, and bears the College clock and bell. It contains the library; the philosophy chamber, a large apartment ornamented with paintings, busts, &c.; the philosophical apparatus; and lecture room.

HOLWORTHY HALL. Of brick, erected in 1812. Length 138 feet, breadth 34, height 37. This building is occupied by students of the senior class, every two of whom possess a large room fronting south, and two smaller apartments on the northern side, each sufficiently large to serve the double purpose of a study and bed-room.

HOLLIS HALL. Of brick, built in 1764. Length 105 feet, breadth 44, height 37. It is a plain building, with a simple pediment on each side. It contains thirty-two rooms for students, each of which has two small studies.

STOUGHTON HALL. Of the same dimensions and materials as the last, and appropriated to the same purposes. Being built in 1804, its appearance is somewhat more in the modern style.

* Exclusive of the Medical College in Boston.

MASSACHUSETTS HALL. Built in 1720, and the oldest of the present edifices. It is 100 feet by 41, and has only three stories to the roof, the fourth being furnished with Lutheran windows. It has thirty-two rooms for the use of the students.

HOLDEN CHAPEL. Of brick, 50 feet by 34, height 29 ; originally erected for a chapel, but now occupied by the medical professors, for those lectures which are given at the University. It contains the chemical laboratory and lecture room, the anatomical museum and lecture room, and the Boylston medical library.

COLLEGE HOUSE. Situated on the opposite side of the street, a three story building, containing twelve rooms for students.

Besides these, the president's house and those of several of the professors, also the Medical College in Boston, are owned by the University.

THE LIBRARY.

The Library contains between 17000 and 18000 volumes, and is continually increasing. The selection of books, for the most part, has been made with great care and judgment ; many of them are works of great rarity, scarcely to be found, it is said, even in Europe. Owing to the munificence of the donors, a larger proportion is elegantly bound, than is usual in similar institutions.

The Library is open every day (Sundays excepted) to officers and residents at the university, and such strangers as may visit it. All the students are permitted to use its books, and members of the two upper classes may exchange them twice in the week. The privilege of borrowing books is enjoyed also by members of the Corporation and Board of Overseers, and all clergymen of public education, residing within ten miles of Cambridge.

In addition to this, there is a valuable Medical Library of about 500 volumes, the gift of W. N. Boylston, Esq. for the use of students in medicine at the University, and accessible to members of the Massachusetts Medical Society, residing in the neighbourhood.

PHILOSOPHICAL APPARATUS.

The apartment in Harvard Hall, lately occupied as a chapel, has been repaired and fitted up for the Philosophical Apparatus

and the Lectures on Astronomy and Experimental Philosophy. The room is 46 feet long, 28 wide, and 18 high, and is a beautiful piece of Doric architecture. The instruments have been cleaned and repaired. The smaller ones are arranged in elegant glass cases. The others are distributed about a floor, a little raised at one end of the room, and enclosed with a railing of a circular form, with the lecture table in the middle. Immediately fronting the table are the seats for students, having a curvature corresponding to that of the table and railing. They rise one above another to the number of ten, and are entered at each end from an aisle on the wall. They are sufficient to accommodate two hundred, without any one being more than twenty-five feet from the table.

The philosophical apparatus is very complete. Many of the instruments are upon the largest scale and of the best workmanship. Among the instruments used on the subject of mechanics, are Atwood's machine for illustrating the laws of accelerated and retarded motion ; a whirling table with its appendages ; instruments fitted to demonstrate the various mechanical powers, the laws of projectiles, &c. For experiments in Hydrostatics and Pneumatics, there are instruments for shewing the hydrostatic paradox ; several hydrometers ; Prince's air pump, with a large assortment of receivers and other appendages ; a condenser ; a fountain for compressed air ; an air gun ; glass models of a fire engine, a common pump, and an intermittent fountain. Appropriate to Electricity are several large electrical machines, cylindrical and globular ; a plate machine of two feet diameter ; several electrical batteries, amounting to sixty feet of coated surface ; a variety of electrometers and condensers ; three galvanic batteries, one of two hundred pairs of plates, six inches square ; apparatus for the decomposition of water, the alkalies, &c. Among the optical instruments are a number of microscopes, simple and compound, the solar and lucernal ; a camera obscura ; a camera lucida ; a magic lantern, fitted to exhibit the constellations, the aspects and eclipses of the sun and moon, and some of the more interesting phenomena of the planetary motions ; instruments for optical deceptions of different kinds ; a reflecting telescope of five feet ; two smaller ones with micrometers ; a night glass ; and an achromatic telescope of three feet. In the department of astronomy, beside the instruments just men-

tioned, are an equatorial ; a transit instrument of three feet ; an astronomical quadrant of two feet ; together with reflecting quadrants and sextants ; also a large and elegant orrery of six feet diameter, exhibiting the diurnal as well as annual motions of the planets, the eccentricities and obliquities of their orbits, the inclinations of their axes, and motions of the satellites ; a small orrery of two feet ; a planetarium, tellurium, and cometarium ; Senex's globes of twenty-eight inches, and Carey's of eighteen inches diameter. Beside the above instruments, the apparatus contains most of the smaller ones, that are described in the best treatises on Natural Philosophy.

CHEMICAL LABORATORY.

The Chemical Department at the University has lately undergone very essential alteration and improvement. On the return of peace, a large order for apparatus, &c. was sent to England, and an agent* went out for the express purpose of selecting instruments of the best quality, both for the Laboratory at Cambridge and in Boston. The articles have arrived ; they have been chosen with much judgment ; they are all of a superior kind, and form a very large, and valuable collection.

In order to accommodate the department of chemistry still farther, the whole of the lower story of Holden chapel has been devoted to this purpose. It is divided by a partition, one apartment being appropriated for a lecture-room, the other for a laboratory. This last room, which is indispensable for the chemist, has been fitted up with great judgment, and contains every thing necessary to a full course of lectures on chemistry, arranged in the neatest and most convenient manner. It is probably the most complete Laboratory in the United States. The series of furnaces are built externally of common brick, internally of the fire proof brick, covered with slabs of soap-stone. This series includes the furnaces for *digesting* and for *naked distillation* ; a *wind* furnace, which with proper fuel will produce a temperature sufficiently high to melt the substance of a Hessian crucible and to vitrify the fire-proof brick with which it is lined ; a *muffle* furnace ; a *forge*, worked with an organ bellows ; a furnace for *common purposes*, and a *distilling* apparatus. The flues of these furnaces are carried up separately, to the height of about

* Mr. J. F. Dana.

35 feet, by which a very strong draught is obtained. One of Accum's *universal furnaces* is placed on an elevation in the lecture room, in order that most of the operations which require heat may be viewed by the audience, during the lecture. The Laboratory is about 35 feet in length and 28 in breadth.

Among the instruments and apparatus recently imported, may be noticed, Leslie's Photometer ; Pepy's mercurial gazometer ; an electrical machine and electrometer, by Singer ; an excellent air-pump, with stopcocks fitted to jars of different sizes ; Wollaston's reflective goniometer ; the differential thermometer ; Ferguson's improved pyrometer ; a voltaic battery in troughs of Wedgewood's ware ; Galvanometers and condensers ; apparatus for the slow and rapid combustion of hydrogen, for the decomposition of water, &c.

An elegant Cabinet of Minerals, containing among the rest a number of highly valuable foreign specimens, presented by the French Government, and by Dr. Lettsom of London, is annexed to the chemical department.

BOTANIC GARDEN.

A piece of ground handsomely situated with a gradual declivity towards the south has been appropriated to the purposes of a Botanic Garden, being partly a purchase of the subscribers to the Natural history fund, and partly the donation of Andrew Craigie, Esq. It is situated about half a mile to the west of the College edifices, and contains from seven to eight acres. This spot is handsomely inclosed with a high fence and a belt of trees, the northern side being sheltered with a copse of evergreens. It contains three buildings ; the professor's house, situated on an eminence on the western side, and affording a delightful view of the garden ; a gardener's house on the opposite side, and an extensive green house and conservatory for the plants of warm climates in the centre. The latter building contains apartments admitting different degrees of heat, calculated for the plants of all latitudes and climates south of us. It is furnished with a rich and splendid collection of exotic trees, shrubs and plants, assembled from the southern parts of our own country and of Europe, from the two Indies, from Africa, South America and New Holland. The area of the garden is laid out in the most ornamental style, and is constantly kept in high cultivation. It contains an extensive

and increasing variety of hardy plants, both native and foreign, and in the vegetating season affords to the students of the University a most excellent practical field for the pursuit of botanical studies. A fountain and a pool of water near the centre furnish a place for the cultivation of aquatics, and an unfailing supply for the purpose of watering the garden. The whole is under the immediate superintendence of the Professor of Natural history, and a suitable number of gardeners is constantly employed for its cultivation.

ANATOMICAL MUSEUM.

The University contains two collections of anatomical preparations, one of which is kept in Boston and belongs to the Medical School; the other in Cambridge, for the use of the senior class of students in literature and the occasional instruction of the medical class. The first contains about a thousand pieces, which are of three kinds. 1st. Dry injected blood vessel preparations of different parts of the human body; 2d. Wet preparations of healthy structure, which are mostly injected. 3d. Morbid preparations. Among the osseous pieces are uncommonly fine specimens of Exostosis, Anchylosis, Necrosis, Spina Ventosa and Fracture; and among the soft parts, of organic diseases of the heart and arteries. The injected wet preparations of healthy structure are probably not exceeded in the United States in number or beauty. Those of the organ of vision are peculiarly elegant. The whole of this collection has been made by the present professor.

There are also in this collection wax representations of the eye magnified; of the ear, and of the male and female organs of reproduction.

The Anatomical Museum at Cambridge consists of preparations of the human body, and others of wax. The former were presented to the University, through the agency of Ward Nicholas Boylston, Esq. by John Nicholls L. L. D. of London. They were prepared by the celebrated Dr. Nicholls, who himself invented the corroded injections. Many of these are found at Cambridge in perfect preservation, and cannot be excelled in beauty nor minuteness; especially those of the vessels of the lungs, of the heart, and of the urinary organs. In this collection, there are a great number of fine specimens of urinary calculi; all which are sawed

to exhibit their interior texture ; among them, are one which has a leaden bullet, and another which has a needle for its nucleus.

The wax preparations were in part a donation from Hasket Derby, Esq. ; the rest were made for the University, by direction of its present Government. These objects being large and not numerous, it may be convenient to give some description of each piece.

1. A head with the scalp divided and turned down over the face ; the cranium is sawed ; on raising it, the external surface of the dura mater presents itself ; this being removed, the surface of the brain is seen : next the two hemispheres of the cerebrum may be removed, and then on looking into the cavity, we see the processes of the dura mater.

2. An exact view of the base of the brain, the membranes being removed. A distinct view is had of the objects at that part ; below the medulla oblongata is seen the decussation of the fibres of the pyramids.

3. A dissection of the base of the brain, representing the fibrous appearance of the pyramids, passing through the pons varolii and diverging in the crura cerebri ; thence the internal appearance of the corpora striata.

4. A view of the interior of the ventricles, obtained by making a section through the corpus callosum and turning the hemispheres on each side. The cavities of the lateral ventricles are seen ; the openings into the third ventricle ; the fourth ventricle opened ; the corpora striata : thalami nervorum opticorum ; pineal gland and its crura.

5. A lateral view of the ventricles on one side, obtained by making a vertical section through the corpus callosum and parts beneath, and removing the whole of one hemisphere. A section of the corpus callosum is seen under it, the fornix before, and thalamus nervi optici behind ; pineal gland ; section of tubercula quadrigemina : communication of the ventricles, the third being opened into the lateral, and the section of the tubercula quadrigemina, exhibiting the aqueduct of Sylvius, which leads to the fourth. Section of the central part of the cerebellum and section of the pons varolii.

6. A lateral section of the brain seen in the cavity of the cranium : and the origins of some of the nerves.

7. A view of the whole brain in the cranium, its anterior part being raised and the hemispheres a little separated to show the origins of the nerves and their passage from the brain to the foramina of the cranium.

8. Base of the cranium, to exhibit the exit of the nerves ; and a section of the orbit of the eye, to show the interior of the orbital fossa and the nerves of the organ of vision. The passage of the auditory nerve is seen ; and the whole structure of the internal organ of hearing, of the natural size.

9. Nerves of the face ; the course and distribution of the facial nerve ; of the external facial branches of the fifth pair ; the glosso-pharyngeal nerves ; and the gustatory, with the maxillary ganglion.

10. Nerves of the neck, heart and lungs. Made accurately from a dissection according to the splendid plate of Scarpa. This includes a section of the whole body, made below the diaphragm. It exhibits some of the most curious and important nerves, especially those branches which it is difficult to exhibit in a common dissection. Nearly the whole course of the par vagum is seen : the cervical part of the great sympathetic ; the phrenic and the brachial plexus.

11. The larynx, trachea, lungs, and heart with its vessels, disconnected from the body.

12. The heart separated from the body, and dissected to show its nerves.

13. A section of the heart to show the cavities of the auricles and ventricles.

14. Section of the kidney to exhibit its internal appearance.

15. Blood vessels of the kidney represented as injected.

16. Various pieces to show the form and structure of the male organs of generation.

17. Vagina, uterus and ovaries, cut open with the fallopian tubes, and blood vessels.

18. *External appearance of the male organs of generation ; capable of being separated to exhibit the blood vessels of the penis, and the coats and structure of the testis.

19. *External appearance of the female organs, with a section of the uterus, exhibiting the situation and connexions of the fœtus in utero.

* These two pieces are now deposited in the cabinet at Boston.

20. A full grown fœtus, with the abdomen opened to display the origins of the umbilical arteries and termination of the umbilical veins. Thence they are seen issuing and forming the umbilical cord which terminates in a placenta.

21. Human ear greatly magnified ; with six small pieces to show the structure of that organ.

22. Human eye magnified in a section of the head, with smaller pieces to exhibit the structure of the organ of vision.

23. Five pieces of natural size to show the coats and blood vessels of the eye.

24. Two pieces to represent the structure of the eyelids.

25. A section of the head to show the organ of taste, the organ of smell, and the salivary glands.

26. Muscles of the face and cranium, with the arteries and veins.

27. An elegant human figure of full size. The cranium is opened to show the surface of the brain with its veins. The thorax opened exhibits the heart in the pericardium, the lungs in their natural place, with their absorbent vessels. The *abdominal cavity, the intestines being removed, shows the liver, spleen, kidneys, urinary bladder, the aorta and vena cava, with the principal blood vessels of the abdominal viscera. A superior and inferior extremity are dissected to show the muscles arteries, veins, nerves and absorbent vessels of those parts.†

In addition to this collection, the professor of anatomy has commenced the formation of a cabinet of Comparative Anatomy. This is small at present, but exhibits the skeletons of various quadrupeds, birds and reptiles ; and some handsome injections of minute structure.

* An order has been given for a large preparation of the organs of digestion, which will render this collection more perfect.

† This single preparation was recently obtained at the expense of 600 dollars.

MASSACHUSETTS MEDICAL COLLEGE.

The Medical Lectures of Harvard University were formerly given in Cambridge only, to the senior class and to medical students. In the year 1810 it was thought expedient that a Medical Institution should be commenced in Boston, under the auspices of the University, for the express education of medical students. The object of this new establishment was to allow a longer term for the medical lectures, and also to afford students the opportunity which they had not before enjoyed, of attending surgical operations and hospital practice. A building in Boston was rented and fitted up with lecture rooms by the professors ; and lectures commenced on the different branches of medical science. From this time the number of students has regularly increased, and it is now more than double the average number who formerly attended at Cambridge. The growing state of this institution pointed out the necessity of a suitable public building, to contain the lecture rooms, laboratory, museum, &c. and in 1815 the Corporation appropriated twenty thousand dollars from the grant then made them by the Commonwealth, for the erection of such an edifice. The building, which is to bear the name of the *Massachusetts Medical College*, was immediately commenced, it is now very near to its completion, and will be in perfect readiness for the lectures of the ensuing season.

The Massachusetts Medical College is situated in Mason street, near the Boston Common and Mall. The building is of brick, 88 feet in length, and 43 in its greatest breadth. Its figure is oblong with a pediment in front, and an octagonal centre rising above the roof, and also forming a three sided projection in the rear of the building. This is surmounted by a dome, with a skylight and a ballustrade, giving an appearance of elegance to the neatness and fit proportions of the building.

The apartments on the first floor are a spacious Medical Lecture room of a square form, with ascending semi-circular seats ; a large Chemical Lecture room in the centre, of an octagonal form, with ascending seats ; a Chemical Laboratory, fitted up with furnaces and accommodations for the costly apparatus used in the lectures ; and a room to be occupied by the Massachusetts Medical Society. In the second story is the anatomical theatre, the most extensive room, occupying the whole central

part of the building, covered with the dome, and skylight; with semicircular seats which are entered from above, and descend regularly toward the centre. A large and a small room for practical anatomy, together with another for the museum, occupy the extremities of the same story.

The whole building is warmed by a single stove situated in the cellar, calculated by the inventor* for burning the Rhode-Island coal. Owing to the *smallness* of its draught, it burns this coal in great perfection, keeping up a permanent and intense heat. This stove is surrounded by a brick chamber from which a brick flue is carried up to the second story communicating by large pipes on apertures with all the principal rooms of the house. The air is admitted from the outside of the building through a brick passage way, down to the stove; a portion of it goes to maintain the combustion; the rest being rarified by the heat of the stove, ascends rapidly through the flue, and may be delivered at pleasure into any, or all the apartments, by opening the pipes or communications. The strong current of heated air thus obtained is sufficient to warm the largest rooms in a very short space of time.

A cistern of water is placed near the roof, which is supplied by pumps from a well in the cellar and may be drawn out for use by pipes communicating below.

MEDICAL LIBRARY.

The importance of a *Medical Library* in an institution of this sort, has caused active measures to be taken for an early and respectable foundation of this kind. To this end about five hundred volumes have been already contributed, and suitable provision made for the regular increase of the collection. Attention has been paid particularly to supply such books, as will be most useful to students during their attendance on the lectures; and with this view a considerable number of copies of each of the most approved elementary and standard works on the several departments of medical science, have been furnished. The present deficiencies of the collection, will be supplied during the lectures by the removal from the Boylston medical library in Cambridge, of such books as may be most wanted.

* Mr. Jacob Perkins.

MEDICAL LECTURES AND DEGREES.

The medical lectures in Boston will hereafter commence annually on the third Wednesday in November, and consist of five courses on the following subjects, Anatomy and Surgery, Chemistry and Mineralogy, Materia Medica, Midwifery, and the Theory and Practice of Physic.

Candidates for the degree of Doctor in medicine are required to attend two courses of the lectures of each of the medical professors. They must study three years before they can be examined, two of which at least must be passed under the direction of a regular practitioner of medicine. Those who have not had an University education must satisfy the president and professors of their knowledge in the Latin language and in experimental philosophy.

The examinations commence on the second Wednesday following the close of the lectures, and are made in all the branches taught in the lectures.—An inaugural thesis must be publicly read and defended previously to graduation.

BOYLSTON MEDICAL PRIZE QUESTIONS.

A provision for one hundred dollars per annum has been made by the liberality of Ward Nicholas Boylston, Esq. which sum is annually adjudged in two prizes of \$50 each to the authors of the best dissertations on subjects proposed by a committee appointed by the corporation of the University. Since their establishment in 1803, nineteen of the Boylston premiums have been awarded for dissertations, to various physicians and medical students. The prize questions for the present year were published in the last number of this journal.

COUNT RUMFORD'S LEGACY.

Benjamin Count Rumford, an American by birth, whose talents and researches have given him celebrity throughout Europe, lately deceased at his country residence in France. This distinguished philosopher and political economist, mindful of his native country, has bequeathed, with certain restrictions, the whole of his estate to the University, where he had acquired the first

rudiments of physical knowledge.* His will provides \$1000 a year for the establishment of a professorship, on those departments of Natural Philosophy, which are connected with the improvements of social life. He has also made the University residuary legatee to his whole estate, subject only to certain life annuities.

MISCELLANIES. No. I.

[Communicated for the New-England Journal.]

BY A CORRESPONDENT.

1st. **T**HE supply and the employment of leeches being attended with some difficulties and with some violation of humanity, the following substitute (which forms a species of *cupping*) may perhaps be found successful.

A small machine may be made of tin, composed of two chambers, one above the other, joined by a short tube ; both chambers being, as far as is convenient, cylindrical. The *lower* chamber may have a wide mouth with a smooth, blunt edge, to apply closely to the flesh ; two or three long and narrow apertures being placed perpendicularly in its sides, closed with glass, (but so as to be air-tight,) in order to give a view into the interior. Lastly, the *upper* chamber terminates in a small mouth on its upper side, having a cork stopper. The flesh of the patient being first properly scarified, and then covered with the mouth of the lower chamber of the machine ; a hot iron is next to be held within the air of the upper chamber, in order to rarify it ; the cork-stopper being removed for this purpose. When this air has been

* Count Rumford, then about 16 years of age, attended the lectures of Professor Winthrop in Harvard University in 1770. His early attachment to experimental philosophy is exemplified by the fact, that he constantly walked from Woburn to Cambridge, a distance of nine miles, to attend these lectures.

to a certain degree rarified, the cork-stopper is to be restored ; and the sides of the upper chamber are then to be cooled, that the air which remains may again become condensed. This being accomplished, the blood may be expected to flow ; and whenever the flowing ceases, the operation just mentioned is to be repeated, *toties quoties* ; till the due quantity of blood shall have been taken away.

Some may prefer a machine in two separate parts ; that the lower chamber may have its size and form varied at pleasure. In this case, the joint is to be placed in the tube, and made airtight.

2d. The sick, as well as patients with wounds and fractures, often suffer by having their beds made, or by their being left unmade ; or by exertions which they use in satisfying the wants of nature ; or when surgical dressings are required in the under parts of the body. The following simple apparatus, which may be called a *framed sheet*, has been found useful in these cases.

Let a wooden frame of suitable length, but narrow, having sides two inches thick every way, and in the form of an oblong square, be made to receive a piece of thin Russia sheeting ; simple contrivances being made for straining or slackening the sheeting ; the proper state of which is that of being *stretched*. When a suitable hole has been made through the sheeting, so as to afford a passage from the patient to the chamber utensil ; the apparatus is ready to be placed on the lower clothes of a bed ; the patient resting upon it, as upon a common sheet.

The *bed* in this case, if circumstances render it necessary, may remain a month at least without being made ; for since the *framed sheet* cannot itself be disturbed, so neither can the bed-clothes underneath vary from their original position. But this strictness is in fact unnecessary, as the patient by means of his frame may be lifted up in the air, or be placed on another bed, till his own bed can be put into order.

When attention is to be paid to the *wants of nature*, the frame may be raised, with the patient upon it, to the requisite height ; where it may be secured by blocks of wood resting upon the bed, or by other simple means ; till the patient is ready to be lowered again : and if this be done gradually, one attendant is sufficient.

If a *wound or a sore underneath the body* is to be dressed, an opening in the *framed sheet* must be previously made, through which the dressing may be performed ; the frame being raised up and down as before, but in a greater degree. Perhaps in some cases it may be more convenient to have the patient raised and lowered by means of *slings*, distinct from the framed sheet.

For the mere purpose of keeping the bed-clothes in order under a restless patient, especially when he perspires much, the above apparatus may be *simplified*. A large strong sheet, without any frame, may be spread over the lower bed-clothes, and *strained* by being tied to the four posts and to the four sides of the bed ; so as to keep the lower bed-clothes immoveable, and therefore smooth. This may be called the *tight sheet* ; and will be found satisfactory both to the patient and attendant.

Should the patient object to the Russia sheeting in the frame, as being rough or stiff, he may have a finer sheet of linen or cotton laid over it.—The flatness of the bed produced by the framed sheet, and indeed by the tight sheet, may be obviated by various *fiads or cushions* laid under the body, wherever required.—But common patients will probably submit to the measures above proposed, without addition ; since a worthy person lay in this way upon the framed sheet without having his bed touched almost during a month ; and without the slightest inconvenience.

3d. Patients who are under the circumstances mentioned in the last article, or who are greatly debilitated, may easily have their *body-linen* taken off and put on, in a manner suited to their respective positions.—If lying on the back, their linen may be entirely parted lengthwise behind ; and thus it may easily be changed from above. If lying on the side, the parting may be made and the linen put on in a manner to correspond with this ; and the covering of the lower arm in this case may, if required, be attended to separately ; as also that of the neck.—Tapes may be used for tying together the separated parts of the body linen ; and be managed by means of the bodkin mentioned in the next article.

4th. To facilitate the *passing of bandages* under the trunk or under a limb ; let a *wooden bodkin* be prepared, one or two feet long ; flat and smooth ; having a large eye in it, for the purpose of receiving a piece of tape. Let this bodkin, accompanied with its tape, be passed gently under the limb or trunk, in the part

where the bandage is required ; the fore part of the bandage being fastened to the loose end of the tape ; and tapes being multiplied according to the breadth of the bandage. By the help of a tape or tapes thus passed forward (each tape being passed separately,) a short bandage, or several short ones in succession, may easily be conveyed under the trunk or limb. But in case a bandage be thick, it must be preceded by some thinner material, to let the increase of thickness be made gradual ; and if no sudden ridge be left running across any of the bandages, the passage of every thing will thus become smooth and easy.—This little instrument may be called the *bandage-bodkin*.

5th. One of the most important improvements in modern surgery and medicine is that of *tight bandaging* in certain cases ; an improvement, which has been long applied to ulcers in the limbs ; and which is now used also for rheumatism and scirrhus cancer.

Serjeant Wiseman and Mr. Baynton have each their merits as to the bandaging of ulcers on the limbs ; which will be useful, whether the limb be in motion or at rest.

It is proper however to state some additional particulars on this subject from the late Dr. Kirkland, recently made public through his son.—“ One day in dissecting an ulcerated leg, Dr. Kirkland found the *cellular membranes and vessels*, surrounding the ulcer, loaded with a *yellow gelatinous lymph*, in consistence resembling the white of an egg ; but in tracing it farther, no such fluid was observed.” “ Five or six years had elapsed, when being desired to assist in dissecting a malefactor executed for murder, he observed an ulcer in the thumb ; and in tracing its course, he found the same gelatinous lymph we have mentioned.—This circumstance strengthened his former idea, not only of ulcers in the legs being mostly *local* ; but that those in other parts of the body were frequently one and the same disease.”—This led him to reflect that the older surgeons (in cases of fractures, contusions, ulcers, strains, &c.) had been used to apply a composition of lead-plaster, vinegar, and Armenian bole ; calling it a “ defensative plaster,” because it was supposed to *defend* the limbs from *humors* falling on the part. He was convinced however that the plaster in question possessed no such property ; but that by its neutral powers it corrected and dissolved this yellow gelatinous lymph ; and he was thence satisfied, that he had cured

ulcerated legs for twenty years without knowing the principles on which the cure had proceeded.—He now judged, that the above composition was imperfect; and to improve it, he substituted chalk for the Armenian bole; and according to the consistence which the state of the part required, he added more or less of oil. He said that the attenuating quality of the vinegar gave fluidity to the juices; that by “its moderate warmth, the parts invariably perspired;” and lastly, that the vinegar neutralized the salts which had become *alkaline by stagnation*, and thus set them at liberty, to be absorbed.—Such was the process which Dr. Kirkland usually made to *precede* his employment of the bandage.—But prior to the use of all these methods, he had no objection “to the fomentation of Heister or Turner.”

It is not clear however that Dr. Kirkland understood the whole of his own system on the above subject; for when he said, that “its moderate warmth (we presume the warmth of the vinegar) invariably made the part perspire,” he probably forgot that diaphoretics taken inwardly, do not operate by *being* warm, but by *occasioning* warmth in the patient. The tendency of vinegar taken internally to produce perspiration, is familiar to all practitioners who prescribe Mindererus’s spirit, that is, the water of acetated ammonia. The author should have applied here his favorite theory, that there is an analogy between internal and external diseases; for the vinegar may as well make the *skin* perspire; as sulphate of soda “*purge* the skin only,” as this author tells us that it does, where there is inflammation and tension.

So much for the bandaging of *ulcers*; under which head the ideas of Dr. Kirkland may provoke useful discussion.

The use of bandaging parts affected with *rheumatism*, seems to be an important discovery recently made by Dr. Balfour of Edinburgh.—Nothing further will be observed on this head, than that from this circumstance some may think to establish, in some points, a correspondence between certain ulcers and rheumatism; 1st. Because rheumatic affections are often said to be accompanied with internal collections of gelatinous matter,* resembling

* See, for example, Van Swieten’s Commentaries on Boerhaave’s aphorisms, Vol. 18 of the English translation, article *rheumatism*; an article, which, notwithstanding its many imperfections, deserves perusal by those who have leisure.

those attending ulcers: 2d. Because Dr. Kirkland's son relates, from the *Medico-Chirurgical Review*, Vol. ix. that Dr. Leifler after having discovered this lymph in old ulcers, "extracted it by holding a red hot poker as near the part as could be borne:" and it is known that chronic rheumatism, as well as some cases supposed to be gouty, may sometimes be relieved by actual cautery from moxa, &c.—But leaving this matter to the further consideration of others, let us pass to the use of bandages in *scirrhus ulcers*.

Mr. Young of England, who in 1805 published a work on the cure of cancer by *natural methods*; published also in 1815, under the auspices of the late Mr. Whitbread, M. P. an account of a second method of curing cancer, by means of *pressure*. His cases, which are in general those of *scirrhus* cancer, appear related with candor and authenticity; and certainly seem very extraordinary, and especially the last of them. He operated thus by pressure principally on the female breast; to which it was easy to apply an extensive bandage. The pressure was not only from the first very tight, and in subsequent dressings made as tight as possible; but compresses, and after a time even plates of metal, were placed over the diseased parts, and bound down upon them with the utmost firmness by means of the bandages. The pressure, in consequence of the bandages acting *uniformly* round the chest, (of which the form is *cylindrical*,) was easily supported; and the first result was instant ease; which was followed by a gradual alleviation of all the symptoms; medicine in general supplying Mr. Young in these cases with but a subordinate aid.

Mr. Young pretends to no theory: and perhaps he only resolved, by way of experiment, to treat cancer as a *common ulcer*. Three remarks however occur as to the mode in which bandaging is useful in cases of *scirrhus* cancer. First, the *pain* seems to disappear in consequence of the torpor produced by the severe pressure applied to the nerves of the part; a principle, of which some surgeons (as M. Larrey) appear to have been sensible. Secondly, since the circulation of the blood-vessels is also impeded by this pressure; these tumors necessarily *diminish from the want of nutrition*. Thirdly, the *absorbents* at the same time are rendered peculiarly active; their first law being to have their energy increased under a certain degree of pressure; and their

second, that of operating more forcibly on recent and factitious organizations, than on such as are original and natural.

We say nothing of *gelatinous matter in the case of scirrhus cancer*; for though some such matter is frequently seen in these cases when at their maturity; yet bone, cartilage, fat, and membranes, also appear; and a theory is to be desired which shall account for the dispersion of the whole, under the operation of bandages.*

A proverbial obscurity still envelopes the subject of cancer. To those instances of what has been called cancer, in which the disease from the first produces a *loss of substance in the parts*, rather than an enlargement; bandaging is perhaps not suitable. The same of course is still more true of cancers so situated, as not to admit of the application of bandages.—For a double reason therefore cancer in the uterus, or the disease bearing that name, will not admit of it; first, as being inaccessible to the operation; and next, as it is said that this disease is perhaps from its commencement more commonly corrosive, than generated out of a tumor.

6th. The fatal celebrity of the *spotted fever*, so called, in the United States, has excited some curiosity as to its origin. By some, this fever was at first vaguely attributed to comets; and by others, it has for some years past been as vaguely ascribed to *ergot*, or spurred rye. No one is to be censured for vigilance in *suspitions* in these cases; but an equal activity is to be desired in the search of *proofs*.

The present moment is not the first in which ergot has been charged with producing extensive diseases; since the charge has been carried back to some events which occurred above two centuries ago.

First, ergot or spurred rye has been accused of producing *dry gangrene*, as it has been called; one of the most singular maladies which has yet appeared among the human race. The first attacks of this disease are said to be usually seen in the season of harvest, and for a few months afterwards; and the spurred

* As to the component parts of scirrhus cancer, consult here Dr. Adams's pamphlet on cancerous breasts; for though his explanations may not be accepted, his facts are well worthy of attention.

grain which some have considered as its origin, is said to occur most in wet seasons. The dry gangrene, in its very *worst* forms, begins by destroying the flesh, ligaments, and bones of the limbs, especially in the lower extremities, and it may chance also to destroy the nose; leaving the patient, should he live thus far, with only his trunk and head; which of course do not long survive this loss of their appendages. There is commonly little or no moisture attending this gangrene, and still less bleeding; the decay being somewhat like that of a tree when rotting.—This disease is often mentioned, when spotted fever is ascribed to ergot: but there seems no resemblance between the two effects thus ascribed to one common cause. The spotted fever when it first arises *spontaneously* as an epidemic, begins its course commonly (in the northern parts of the United States) in January or February; its attacks often last through the spring, extending sometimes even into the summer and fall: its most genuine form being usually best seen in dry air and dry places. We need not add a detail of the *symptoms* of the spotted fever, to shew their disagreement with those of the dry gangrene; especially as enough to decide the question may be learned from this single remark; namely, that dry gangrene produces little fever, and that spotted fever, when well treated, produces little gangrene. It is not therefore from any analogy between the two complaints that the rise of the one is to be considered as establishing the nature of the other.

Again: Ergot has been supposed to generate a *most violent spasmodic disease*. Others, it is true, doubt the truth of this imputation; and yet it is remarkable, that this disease has more affinity, than gangrene has, with spotted fever; and therefore in justice it ought to be more fully characterized; in which case it might perhaps be described as a malignant nervous fever, accompanied with spasm; but not commonly (as some have thought) intermittent; and, in the opinion of some, it has been free from contagion.—But allowing even a perfect identity between this disease and spotted fever in essentials, yet unfortunately in our day we are not furnished with the proper means of precisely ascertaining what produced this spasmodic disease in any of the instances recorded from former times; so that it will be more easy to search at the *present moment* for proofs, both positive and negative, which shall connect together ergot and spotted fever;

than to attempt to demonstrate the same more circuitously. Evidence such as is required in the exact sciences, is not to be looked for ; but where the life of man is concerned, the spirit of the age demands something like experiment and observation, instead of careless guesses.

One modern experiment with ergot, which has now become of some note, is ready to our hands ; but it is not very convincing as to the specific power of ergot to produce spotted fever. Ergot has lately been given *medicinally* (but with peculiar precautions) to produce speedy delivery in certain cases of female labour ; and others besides women, have made trial of it for other purposes. It is not yet generally known that any other conclusions are to be drawn from what has thus occurred, than the following, viz. that *moderate* doses of ergot have no marked effect upon the human race, except in the case of women ; and that in them, it has acted only upon one organ ; and upon that organ suddenly, and only when it is in a peculiar state. These are certainly very limited grounds for a general conclusion ; nevertheless if we take farther into our account the observations and experiments of former times, we ought not to be surprised, if it should be found, that a large and continued use of ergot in the food of man or of other animals, modifies, if it does not create, certain diseases ; and that a tendency both to *gangrene* and to *spasm* may be among the evils which it thus produces. But that it generates spotted fever specifically, is *at present* matter of almost pure assumption ; particularly as we know that many distempers at times affect one portion or other of our vegetable food, without any notable epidemic disease being observed to follow in the human race. If it be at any time the cause of spotted fever, it must often originate thus in a few only, and be propagated to many others who do not eat rye ; which is ascribing more of contagion to the disease, than some will admit.

Such however is the defective state of our knowledge as to the causes of epidemic diseases, that it becomes medical men to institute rigorous inquiries into these subjects. The events of the animal world in its several branches, as well as of the vegetable world, will in this case require to be watched, and compared with what happens within ourselves. At the same time we ought to be prepared with better tests for the examination of the atmo-

sphere which we breathe and which surrounds us, than the present state of our eudiometers affords us ; before we can make satisfactory estimates of every thing which influences the human constitution.

On the whole we shall observe on this subject, 1st, that wheat is very rarely troubled with ergot and still more rarely barley ; the chief connection of ergot being with rye. 2d, A diligent observer (M. Aymer) has conjectured that *smut* (charbon) is the parallel disease in wheat, to ergot in rye. 3d, We are morally certain, that rye has never been used in a spurred state or even at all, in many instances where spotted fever and even dry gangrene have appeared : so that these cases must either have been the result of *contagion*, or have proceeded from some *other* cause. 4th, In a celebrated case of *dry gangrene*, namely, that of the Downings, of which more will be said in a note, the only grain employed was damaged *wheat* ; and if this alone occasioned the disease, it produced it, as it were, in a moment, after a long period of inactivity ; and *this* particular disease, in this case as well as in every other, *seems* to have been free from contagion. 5th, Those who consider ergot from rye as generating epidemic disease, yet admit that in general its noxious qualities, under *common circumstances*, last only for a few months. 6th, No disease is known to have been produced by ergot, unless where the ergot has been taken to a large amount, or during a given period. 7th, Though it should be denied, contrary to evidence, that ergot is the *sole* cause of any given disease ; yet ergot may at least *prepare the way* for a given disease, or may be the cause of one or more of its *symptoms*. For example ; spasm may possibly in some instances be a *symptom* introduced by ergot ; since spasm appeared in the *spasmodic* fever above noticed, and is the precise effect produced when ergot is used medicinally with women in labour.

February, 1816.

P. S. That spotted fever is not to be held as the *necessary* produce of ergot in rye, has been stated above ; but ergot is now charged with sometimes producing bowel complaints in *cities*, and not spotted fever. But why do some attribute spotted fever to ergot, in *certain country places* ? Is it because a constitution of things, more potent than ergot generates this disease, or assists

in generating it? In France, the occurrence of spotted fever seems not to have been at all frequent, and in proportion to the abundance of ergot with which it has been infested. The Italians have had petechial fever; and yet do not seem to have complained of the prevalence of ergot, like the French. The Germans and English also have at times had spotted fever; but have not always laid the blame of it on ergot.

From these and many other circumstances, we may be disposed to believe with Sydenham, that there are epidemic "constitutions" or *tendencies*, which *come and go (like ergot itself)*; and depend on great, but sometimes hidden causes; and which as they have withdrawn the plague heretofore from England, seem now to be withdrawing typhus from that country; perhaps in order to introduce spotted fever, to which, as we have just observed, it has by no means been entirely a stranger.

March, 1816.

Note.—The search into the history of ergot as connected with disease, and especially with *epidemic* disease, is not to be made without labour.

The following are some of the authorities which have been consulted on the present occasion.

Memoirs of the French Academy for 1666, 10, 561, (being for the year 1676);—1710, H. * 61;—1748, 128;—1759, H. 118;—1763, H. 53;—1769, H. 77. Also, *Memoirs des Savans Etrangers* of the same academy, 2, 53; 3, 68; and 4, 371 and 382. Also, London Phil. Trans. for 1762, p. 523, 526, 529, and 584;—and for 1765, p. 108. Also, Dr. Thomas Bateman on Cutaneous Diseases, 3d edition, p. 134, with the notes. Also, the article *Ergot* in Dr. Rees' new Cyclopædia, (written by Dr. Bateman, as stated in the preceding work, p. 237.) Lastly, a Dissertation on the Natural History and *Medicinal* effects of the *Secale Cornutum* or Ergot; by Dr. Oliver Prescott of Massachusetts.

The Memoirs of the Royal Society of Medicine at Paris, vol. 1, (containing memoirs by Messrs. Jussieu, Poulet, Saillant, and

* H. means here the Historical part of the work, which is distinct from the Memoirs.

the abbé Tessier,) have not been inspected ; nor yet the work of the celebrated economist, *Quesnay*, on Gangrene.

It is believed, that if Dr. Bateman will again peruse *Tissot's* valuable letter to sir George Baker, in the London Philosophical Transactions for 1765, he will not find that the best accounts of violent spasmodic disease there mentioned, necessarily imply its connection with *want of food*.

With respect to the Downing family, a father, mother, and five children, lost eleven out of twelve feet or legs diseased among them ; one of the children actually dying. No notice is taken here of the child at the breast, who died after some weeks, (as the nurse said) with blackened legs ; since it does not appear that it partook of the family diet. The following is a part of the statement of Mr. Bonus, the clergyman of the place, made in reply to the queries of sir George Baker, M. D. " We have *no rye*. This family have been used to buy two bushels of clog-wheat, or rivets, or bearded wheat, (as it is variously called in Suffolk) every fortnight : of this they have made their household bread. This wheat they have bought of a farmer *with whom I lodge* ; who tells me that last year he had some wheat laid, which he gathered and thrashed separately, lest it should spoil his *samples* ; not that it was mildewed or grown, but only discoloured and smaller than the other. This damaged wheat he thrashed last *Christmas* ; and then this poor family used no bread but what was made of it ; as likewise did the farmer's *own* family, and *some others* in the neighbourhood. We observed that it made bad bread, and worse puddings ; but I do not find that it disagreed with any body. A labouring man of the parish who had used this bread, was affected with a numbness in both hands, for about four weeks from the *ninth* of January. His hands were continually cold, and his fingers-ends peeled. One thumb, he says, still remains without any sensation. In this part of the country, there is a great deal of *old ewe mutton* killed between the first of November and January, some of which is very poor and *rotten* ; and is usually sold at three half-pence or perhaps one penny a pound. In December last, this family lived for three weeks at least upon this mutton ; of which they bought a quarter at a time (weighing seven or eight pounds) for one shilling."—p. 530—531. So far Mr. Bonus. Dr. Charles Wollaston, F. R. S., who also was on the spot, writes thus in his *second* letter. " I have taken all the

pains I could to inquire into the cause of so remarkable a disorder ; and Mr. Bonus has made all the inquiry in his power : but we have not been able to find, that there was any thing particular either in their diet or manner of life, to which it could be attributed. The corn, that is, wheat, with which they made their bread, was certainly very bad ; it was wheat that had been cut in a rainy season, and had lain on the ground till many of the grains were black and totally decayed : but many other poor families in the same village made use of the same corn, without receiving any injury from it. One man lost the use of his arm for some time, and still imagines himself that he was afflicted with the same disorder as Downing's family ; but by what I could not learn from him, there seemed to be no reason for this supposition : he is long since perfectly cured." Thus far Dr. Wollaston. It does not appear that any thing eaten by this family had disagreed with them, except a meal of pickled pork and peas ; but this only produced a slight sickness at the stomach in three of the children ; and one, if not two of the family had been taken ill on that day (January 10,) before dinner time. Some little variations will be found in the different accounts ; and in one instance January 19 is written for January 10, as it stands in two other places : but generally speaking the accounts are minute and deserving of credit. Here we must leave the history of this Downing family, which is often referred to by medical men.

Sir Joseph Banks' account of the diseases of grain by accident is not at this moment at hand, nor yet that of Fontana ; but the following little table is made out by the help of M. Aymer's *Memoirs*, in the 3d and 4th volumes of the *Memoirs of the Savans Etrangers* above cited, and of other data ; some of the synonymes only being suppressed.

Rust :—Rubigo, *Lat.* Stem, leaves and whole plant attacked.

Blast :—Ustilago, *Lat.* Fuligine, *Ital.* Nielle or Crulure, *Fr.* Flower attacked.

Smut :—Caries, *Lat.* Carie or Charbon, *Fr.* Grain of wheat attacked.

Spur :—Secale Cornutum, *Lat.* Ergot, Bled corni *Fr.* Grain of rye attacked.

It must be observed, that all of these diseases do not appear to have been known to the ancients, or at least not to have been duly described by them in such of their works as have descended to us.

It is commonly noticed by writers in modern times, that ergot prevails in other plants besides rye ; and perhaps its equivalent is sometimes seen to follow the blossoms of certain plums ; but this perhaps has not been sufficiently ascertained.

ON RHEUMATISM IN THE HEART, EYES, &c.

BY JAMES JACKSON, M. D. *Professor of the theory and practice of physick in Harvard University.*

[Communicated for the New-England Journal of Medicine, &c.]

THE occurrence of affections in the heart and lungs in persons affected with rheumatism is neither new, nor very rare. Yet the history of such affections, has been within a few years ascertained more definitely and precisely, than at any former period. Dr. George Fordyce, in his third dissertation on fever, says that when bleeding is practised in acute rheumatism a fatal metastasis to the head, or breast is frequently produced. Although he might be in error as to the cause, his remark shows that the metastasis was well known to him. The remark has been more strongly impressed on my mind in consequence of a case, which occurred in St. Thomas's hospital about the time when I read it. This was the case of a young man under the care of Dr. Ainslie. The patient had acute rheumatism and was bled copiously. Dr. Fordyce had two, or three cases of acute rheumatism under his care at the same time, in which the affection was equally severe ; and he did not direct bleeding. His patients recovered very well : but Dr. Ainslie's patient was affected with a severe disease of the heart and lungs, in consequence of which he had great dyspnœa and was obliged to keep his body in an erect position. It was remarkable that the pulse could be felt in only one wrist, in which it was very strong and hard ; and my impression was that the pulse had been felt in both wrists at the commencement of the disease. Repeated bleedings and blistering were tried without relief, and the patient at length sunk after excruciating sufferings.

Instances of a similar affection of the heart must no doubt have been taking place at all times, and there may be found other occasional notices of them, or references to them besides that of the philosophical observer above referred to. That however a real inflammation of the heart and lungs is established in such cases has been unequivocally demonstrated only by late observers. In three different periodical works of recent date we find papers on this subject. The first is by Mr. Dundas, serjeant-surgeon to the king, published in the *Medico-Chirurgical Transactions*, Vol. 1. in 1809. The second is by Charles W. Wells, M. D. physician to St. Thomas's hospital, and published in 1812 in the third Vol. of the *Transactions of a Society for the improvement of medical and chirurgical knowledge*. In this paper Dr. Wells gives to the late Dr. David Pitcairn the credit of first remarking "that persons subject to rheumatism are attacked more frequently than others with symptoms of an organic disease of the heart."

The third paper is in the "*Journal Général de Médecine, &c. rédigé par Sedillot, No. ccxxii, Tome lxi,*" published in February 1815, and is written by Mr. Matthey, D. M. P. of Geneva.

Most of the cases related in these papers proved fatal, and several of them were examined after death. A few of them terminated more favorably; but some of the patients continued for a long time to manifest a disorder in the functions of the heart; and others continued to suffer from this cause at the period when their cases were published. The symptoms were those common to carditis and pericarditis; and with them were sometimes combined from the beginning symptoms, which shew that the lungs also were affected with inflammation. The examinations after death shew that inflammation had proceeded to the adhesive stage in the pericardium, and often both in the serous and in the cellular membrane of the lungs. The lungs were also disordered in consequence of the irregularity of the circulation, as well as from the direct effect of inflammation on them.

For many interesting and important details the reader is referred to the very valuable papers above described. They will abundantly repay him for a careful perusal. He will find in all of them evidence of unequivocal inflammation of the heart taking place in subjects, who at the moment, or shortly before were af-

affected with rheumatism. He will find that this inflammation rarely, if ever, passes beyond the adhesive stage ; but that, so far, it exhibits the characteristics of common inflammation. But whether this affection is specifically of the same kind as that affecting the large joints in rheumatism may admit a doubt. That however the heart and also other parts, not commonly subject to this disease may be truly affected by it, will appear from the cases now to be related.

Case I. In July 1812 I was called to attend Miss C. a young lady then about 20 years of age. She underwent the acute rheumatism in a very severe form, so that I attended her closely for about six or seven weeks, and occasionally for some weeks afterwards. The disease attacked most of the large joints, also the neck and loins, and affected most of these parts three distinct times. In each of the circuits which it thus made, it included the heart and the muscles of the thorax. When these parts were affected the disease diminished and gradually subsided in the joints last seized, and as the heart became relieved the disease again seized on some of the joints. But the limbs were not entirely relieved during the affection of the heart, any more than one joint was entirely relieved during the affection of another joint. The symptoms, which marked the affection of the heart and thoracic muscles, were pain and distress in the region of the heart and across the breast, difficulty of breathing and even of speaking, violent palpitation, great tendency to syncope especially on motion and irregularity of the pulses. These were mostly very frequent, but at one time were very slow ; they often intermitted and were very irregular. This patient was visited several times by my late respected colleague John Warren, M. D. At one period we were both in momentary expectation of the termination of life in the young lady, in consequence of the great difficulty with which the heart performed its functions. For moments it would pause and seemed to threaten to stop forever.

The patient was of a slender form and feeble constitution, and the first attack on the heart was not extremely severe. She was not bled therefore at that period. And although the subsequent attacks were much more severe, and especially the second, she was then too much reduced to leave a question on the expediency of that evacuation. The remedies employed were vesication and opium, from both of which she derived great relief dur-

ing the affections of the heart ; also antimonials, submuriate of quicksilver and in the later stages cinchona and other tonics. The patient survived the disease contrary to our expectations, and although her convalescence was slow, yet ultimately she recovered her health entirely. She was married shortly afterwards and in the following autumn was safely delivered of a healthy child.

From the first attack on the heart this organ continued unusually irritable during the remaining period of the disease and of the convalescence ; just as those joints, which suffered severely were not, during the same period, entirely relieved from lameness. While the heart was much affected the patient found it necessary to have her head and shoulders raised very high, and even at times to have the trunk in an erect position ; at these periods also the least motion and even speaking were very distressing to her ; but at other times she could lie down and submit to some variation of posture.

Case II. In the autumn of 1814 Mrs. L., an English lady, came under my care on account of acute rheumatism, with which she was severely affected for several weeks. The disease affected her neck and the large joints of the limbs, likewise the hands and feet. It began in the large joints and its character was unequivocal. During its continuance it changed from limb to limb as usual, and the different parts were affected a second time. In its circuit each time it attacked the eyes. The tunica conjunctiva of both eyes became suddenly and violently inflamed, and continued to be so for three or four days ; then they mended suddenly, but at that moment the nose became diseased. The disease appeared here to affect the mucous membrane. In the course of the disease the parts about the præcordia were severely affected, and respiration was very painful. This is not rare in acute rheumatism.

In this case I could not doubt that the ophthalmia was rheumatic, and I had before seen some appearances of the same kind, but which had left only a slight impression on my mind. The following case which happened fifteen months afterwards was sufficient of itself to decide the question, whether the eyes could be affected with rheumatism.

Case III. This is the case of Mr. P. a gentleman who was about twenty years of age and of a sanguine temperament. He had generally enjoyed good health.

On the 13th of January (1815,) he called on me with the tunica conjunctiva of his right eye slightly inflamed. On moving the eye; he complained of some pain, which appeared to be in the proper muscles of that organ. I directed some leeches and a saturnine lotion. These remedies were employed that evening, but notwithstanding them the inflammation increased very greatly during night, and the pain was extremely violent. Early the next morning I found the tunica conjunctiva very much swollen and very red, the cornea opaque, and the powers of vision entirely lost. The skin was hot, and the pulses hard and accelerated. I bled him freely from the arm twice on that day, purged him and blistered his neck. The pain had ceased at evening, but returned with great severity during the night. For five days the inflammation continued with great fury,—during which time he lost by general and local bleeding more than seven pounds of blood, was purged abundantly, blistered freely, kept in the dark and on the lowest diet. During this time the vessels of the conjunctiva were cut off by Dr. J. C. Warren, twice, so as to arrest the disease in the cornea. As the cornea mended the aqueous humour became turbid. On the sixth day the inflammation was yielding and on the seventh its violence had quite subsided. The cornea and aqueous humour very soon recovered their usual transparency; but the powers of vision were scarcely mended, owing I presume to an affection of the nerve.

It should be remarked that this inflammation was very rapid in its changes, affecting in succession parts of different structure in the eye, and that it was extremely violent in degree, resisting the effects of remedies of great power. The pulses at the same time were very hard. Although the bleedings were large and produced deliquium in every instance, yet the pulses scarcely yielded to them until the fifth day on which they were practised, nor then perfectly. This was the sixth day of the disease. On the evening of the seventh day the nature of the affection was manifested for the first time by a transference of it to the right knee. This joint was then attacked with pain and soon after by swelling evidently rheumatic, and at the same time the pain left the eye entirely.

From this period the disease manifested the common symptoms of acute rheumatism, affecting the large joints of the lower extremities for the most part, and occasionally the neck and

joins. It continued to renew its attacks with severity for three months, although there was in this time one interval of a month, in which the disease appeared to be subsiding. The eye had two attacks during these three months, the disease leaving the limbs and returning to them again as the eye recovered. The second attack was short but severe, though less so than the first. The third was less severe, but longer. In each of them the blindness was perfect ; and in each the disease affected first the tunica conjunctiva, then the cornea, then the aqueous humour. In one instance the crystalline humour was opaque for a day or two. The changes of structure took place suddenly and subsided suddenly, as happens in respect to the swelling of the joints in this disease.

When the eye was attacked the second time, blood was drawn from the arm, and in each attack leeches were applied liberally. Vesication was employed almost constantly about the head and on the limbs. Antimonials were given very freely both before and after the real nature of the disease was manifested ;—opium was exhibited p. r. n.—and in the course of the disease cinchona was tried very fully. The strength of the patient was less reduced than might be expected from the evacuations made, and was never so much prostrated as is common in acute rheumatism. Great care was taken in the use both of food and medicine not to get the stomach into the irritable state so common in this disease ; and although the appetite was lost in the early stage that organ never lost its tone, and nothing like dyspepsia took place at any period.

The joints of the upper extremities were almost exempted from disease ; but those of the lower extremities (the knees and ancles) were so severely affected that the patient was unable to walk a step from the first attack until about the first of May. During perhaps the largest part of this time he had very little pain when at rest.

The power of vision in the rheumatic eye was never restored perfectly ; but the precise state of it was not ascertained until April, when for the first time the light was admitted freely into the patient's apartment. He then found that there was frequently occurring an appearance of something like the body of a spider, with two wings, passing over his eye at the upper part of the pupil. As there was not any mark of injury in the cornea, nor

of change in the humours, this appearance was attributed to an affection of the retina. This opinion was confirmed by the consideration that the power of vision was restored very slowly after each attack, although the opacities had subsided suddenly and rapidly ; and by the statement of the patient that he had frequently noticed this appearance before he mentioned it and while the room was darkened, but that he had thought it was owing to the defect of light in the room.

In the latter part of April and in May electrical shocks were applied to the head three times a day. Also mercurials were used moderately—i. e. Subm. Hyd. gr. 1 every night. The eye recovered partially, but not entirely.

Mr. P's mother has been very often, and at times severely affected with rheumatism. Two gentlemen, cousins of hers, have been nearly crippled for many years with the same disease, and their eyes have been so much affected as to have rendered them nearly blind. This affection of the eyes has evidently been connected with the disease in the limbs.

When the rheumatic character of the ophthalmia in this case was first developed, and I expressed my opinion respecting it to Dr. Warren, to whom I stated the recent change at his subsequent visit, he remarked at once that he had not any doubt on the subject ; for that he had previously seen more than one case of a similar nature in his own practice. An account of these cases he is about to publish, with some others of diseases in the eye.

Case IV. At the moment while preparing this paper for the press, (March, 1816) I have under my care a lady nearly seventy years of age, who has acute rheumatism, and in whom during the last week, the tunica conjunctiva of both eyes has been inflamed. The inflammation of the eyes in her case came on rather slowly, has not been attended with severe pain, though the swelling has been considerable, and has not been accompanied by any marked alleviation of the disease in the limbs. It is true however in this case that the limbs have suffered less during the ophthalmia than before.

Case V. To the foregoing cases I may add one more, of a kind which I apprehend has been more noticed than either of the others. During the last autumn dysentery was more common in this place than usual. About the beginning of October

I attended Mr. H. under this disease. The symptoms yielded at once to remedies, but did not quite subside for eight or ten days. About this period the patient began to complain of stiffness in moving his limbs, particularly his thighs. On the second day this affection was evidently rheumatic, and the dysentery ceased at this moment. The rheumatism diminished after two or three days, under the use of common remedies, but it did not entirely subside. There now occurred symptoms of disordered stomach, induced apparently by imprudence in diet. An emetic was administered which operated very violently, and from this time the patient recovered rapidly.

Cases of this kind have been noticed by Dr. Ferriar and others, and I should not have thought this worthy of publication, except in connexion with what follows. A short time since I had a patient with pneumonia, in whom as the pneumonia subsided there took place rheumatism in the muscles of the neck, with great pain in the head. In this stage of the disease a physician, who practises in the western part of the state of New York, and who was related to the patient, happened to be in town. He saw the patient with me, and in conversation respecting the case he stated that during the last autumn dysentery had prevailed in his neighbourhood, and that in a very considerable proportion of his patients it had been followed by rheumatism; the dysentery subsiding as the rheumatism supervened. This is the first instance, so far as I know, in which such a metastasis has characterized an epidemic. The gentleman above referred to was one of liberal education, and appeared to me to be entitled to full credit.

I trust that the facts stated in this paper will not be destitute of utility; but I will leave to the reader the task of making inferences from them.

OBSERVATIONS ON SOME DISORDERS OF THE EYES.

[Continued from page 277, Vol. II.]

BY JOHN C. WARREN, M. D. *Professor of Anatomy and Surgery in Harvard University.*

RHEUMATISM OF THE EYES.

A GENTLEMAN was attacked with pain in the head, nausea, and inflammation in the right eye. I bled him to the amount of twenty ounces, and directed an emetic. The complaint in the eye increasing, he was ordered warm fomentations, blistering, and a strong purgative. On the fourth day, I observed a spot on the cornea connected with a fasciculus of vessels on the conjunctiva, and, being fearful of the effect of the consequences on his vision, I excised the vessels of the conjunctiva. In a few hours the spot, together with a general opacity of the cornea, connected with it, had disappeared. Soon after, he complained of a pain and swelling in the right knee, for which he was directed hot fomentations and affusions of tepid water. These applications gave a partial relief; but this relief was immediately followed by an increase of pain in the eye and a return of opacity in the cornea. A great number of leeches were applied to the eye, a warm solution of sulphate of zinc, and the vicinity of the eye was blistered. The pain in the eye ceased; the redness and some degree of opacity continued. Immediately on this, the knee swelled and became excessively painful. Now, the complaint remained obstinately fixed in that part, while at the same time the other knee and the wrists swelled. After these occurrences, the local applications were, in a great measure, suspended, and recourse was had to general remedies. Mercury, opium, antimony, warm bathing, all carried to the farthest point of administration, gave him no permanent relief. Blisters were followed by some mitigation of the pain. After two months he tried the wine of hellebore, and gradually increasing the dose to forty drops every three hours, he was completely poisoned by it. His whole body swelled, and was covered with an eruption; the

tongue was perfectly dry, and so swelled as scarcely to be moveable; but he complained most of a distressing load at the stomach. The last symptom was relieved by an emetic. The others gradually subsided under the use of purgatives and warm bathing; and as soon as the swelling of the body would permit him to make an exertion he found his knees flexible and without pain. The symptoms of disease had now completely subsided, except a stiffness of the knee joints, which disappeared gradually.

A year after he had another attack of inflammation in the eye, with diurnal paroxysms of pain. After a copious bleeding he was relieved in about ten days under the use of a solution of the oxyd of arsenic, and some blisters.

A gentleman of feeble constitution, whom I had cured of a severe urethral complaint some years before, was attacked with a pain and swelling of one knee. Some trifling remedies were employed. Three days after he was affected with the symptoms of continued fever, which lasted about twenty days, and nearly proved fatal. During his illness the knee was slightly swelled. As he recovered the swelling increased, and was attended with pain. He rubbed the knee with brandy, and the next day had an inflammation of the eyes, which lasted about ten days. The only applications were blistering, and a solution of the acetite of lead with laudanum. During this inflammation the pain in the knee was not troublesome; but no sooner did it subside than the pain in the knee became excessive, the solid parts of the joint formed a hard swelling, on which the finger made no impression. The muscles of the neck became stiff and painful, and one of the wrists swelled. After some vapour baths, fomentations and leeches, and three months of extensive blistering about the knee, he was relieved of pain and swelling. The motion of the joint was restored by frictions and exercise.

A gentleman came to me from the country with a severe inflammation of the left eye, attended with opacity of the cornea sufficient wholly to obstruct the admission of light. He experienced so little inconvenience from this inflammation that he had not thought it necessary to protect the eye, by any covering. He informed me that the inflammation and opacity would subside in a few days, and his eye would be as sound as the other; that he had been subject to these attacks about ten years, and that his object in applying for advice, was principally with a view of ascer-

taining whether any method could be devised of preventing the recurrence of the attacks, as, though he was not uneasy about the actual opacity, he was fearful it might, at some period, become fixed. Being suspicious that his case might be of the nature of those stated before, I enquired whether he was subject to rheumatism, and received for answer that he had been so from about the time that his inflammations of the eye commenced, and that when his eye was inflamed the limbs were commonly easy.

During the past winter rheumatism has been unusually prevalent; whence I have had an opportunity of observing a number of cases of rheumatic ophthalmia, though less distinctly marked than those mentioned above. One circumstance was common to all; that the disorder of the eyes was but little affected by the most powerful local applications, and required the use of general remedies to affect a cure.*

WEAKNESS OF SIGHT.

Having been often defeated in attempts to cure a defect of vision arising from great sensibility to light, I took the earliest opportunity of trying the depleting practice recommended by Mr. Stephenson. This did not succeed so well as I wished; and a little reflection served to convince me that the application of five or six leeches to the eye could not be expected to produce a change in the state of a chronic disease, supposed to reside in the internal coats of the organ. A more liberal use of the same remedies has been followed with very satisfactory effects.

A lady in the prime of life, of firm constitution, subject to severe fits of periodical head-ach, had been for two or three

* It is not my intention to make general remarks on this complaint; but it may be well to note that, among other appearances during the winter, I have met with three cases of paralysis of one side following rheumatic affections; one of severe spasmodic disease of the intestines; one of sudden delirium, by a metastasis from the back to the brain; two or three of inflammation of the pleura, which I was inclined to consider of the same nature. These last were very distressing in one instance, while in others, although there was a considerable bloody expectoration, the other symptoms were remarkably mild. The cases of paralysis were all cured by vesication; yet not so completely as to restore the natural strength of the affected limbs.

years suffering from such a sensibility to light as at last to prevent her employing the eyes in any labour or amusement. She had used a multitude of remedies without advantage.—At first I took a large quantity of blood from the arm, directed permanent blisters behind the ears, frequent purgatives, and a regular mercurial course. Evidences of constitutional affection from mercury were kept up about six weeks without any advantage. The head-ach being now very regular and very troublesome, bleeding was repeated, and large doses of peruvian bark were given at first, and then a solution of arsenic, with the expectation of curing the head-ach and possibly the disorder of the eyes at the same time, as they might depend on the same cause. The solution of arsenic was continued a long time, without any good effect. Not being able yet to obtain leeches, I directed a solution of the extract of hyoscyamus to be applied every other evening. Its immediate effect was a dilatation of the pupil and increase of suffering; but the day following the application was always more comfortable than usual. No material change in the complaint was effected, however, and the patient became discouraged; yet was still ready to try any thing which promised relief. As soon as the season admitted the procuring a sufficient number of leeches, the application was commenced. On the first day twenty leeches were applied, on the second thirty, and on the third thirty-five. The leeches were large and voracious. One of them, weighed before and after being applied, was found to have taken three drachms of blood. After an intermission of two days the application was again made; thirty were applied on the first day, thirty-five on the second, and forty-seven on the third. Two more days were allowed to elapse, and then about the same number was again applied during three successive days. A slight degree of debility was now experienced, and the eyes felt a little relieved, so as to encourage a continuance of the leeches. After a week the same course was repeated; then an interval of about three weeks elapsed, and another application was made. The eyes were now mending rapidly. The leeches were discontinued, a seton made; a vegetable diet and exercise in the air recommended, the eyes being shaded; and as the patient was desirous of using the solution of hyoscyamus occasionally, this was permitted. In a very gradual manner, the healthy state of the eyes was restored, so that at the end of three months from

the first use of the leeches, I had the pleasure of seeing her perfectly cured, and she has now continued well about two years.

A young lady of delicate constitution requested my advice for debility of vision, and extreme sensibility to light. She had been so long afflicted with this complaint, and had used so many remedies, as to have become almost hopeless of relief. Before using leeches I was desirous of making trial of the extract of hyoscyamus or of stramonium. Blisters were directed behind the ears, and a grain of calomel given every night, and a warm solution of one of these narcotic extracts ordered twice a day. No benefit being derived from these applications, the use of leeches was resorted to. She made a few trials with eighteen or twenty, and afterwards increased the number to sixty in one morning. This last application caused a degree of faintness, and was followed with a sensible change for the better. Permanent blisters were then applied, and continued about two months, during which time her sight was much improved, and her situation rendered very pleasant compared to what it had been. The blisters in this case were useful probably, but ought not to receive great credit, as they had frequently been employed before the leeches, without any advantage.

Mr. R. a gentleman of about thirty, had been subject to a defect of vision for a number of years. At the time I saw him he was unable to read more than a few lines before a sudden confusion or blur spread itself over every object, and entirely defeated his efforts to read. No leeches were to be had, and he was therefore ordered a course of brisk purgatives, blisters behind the ears and neck, and a course of the muriate of mercury. Not the slightest benefit was perceived from his course during the three months he followed it. Leeches were then applied, about thirty at a time, for three or four successive days. Their beneficial effect was immediate. He was relieved on the first application, and after applying them occasionally for three or four weeks, he was so well satisfied with his condition as to omit all further remedies.

I have known a single application of a great number of leeches effect a remarkable and permanent relief of this complaint.

DISLOCATION OF THE CRYSTALLINE LENS.

The escape of the crystalline from its capsule is an accident now and then mentioned, but has not, that I know of, been very distinctly spoken of. The first case of the kind which I noticed was in a man of about forty, who was suddenly attacked with violent pain in his right eye, without any external cause. With these pains he had been distressed for many weeks when I first visited him. On inspecting the eye, the lens was seen to be opaque and near to the cornea; the conjunctiva was inflamed, yet less than might be supposed. I opened the cornea with a cataract knife, and with some difficulty raised it from the iris. After this the crystalline was dissected from the iris, to which it strongly adhered, and extracted from the eye. The subsequent inflammation was not remarkable, the wound healed slowly, the pains in the eye were relieved, and have never recurred.

Mr. G. was attacked with a severe pain in one of his eyes, which, on being examined, exhibited an immoveable pupil, in which lay the crystalline lens having its edge projected through the opening. It was proposed to Mr. G. to extract the lens; but on coming to do the operation, his resolution failed, nor could he at any subsequent time collect courage to support it. A chronic inflammation of the eye was the consequence, which continued to trouble him to the day of his death, and this event was probably accelerated by the perpetual irritation of his eye.

A lady of irritable habit, very subject to indisposition, had an inflammation of the eye, the cause of which was obscure. After many observations it appeared that the pupil of this eye was immoveable, and slightly dilated, and the vision of the organ lost, yet the crystalline lens retained its transparency. After two years, the lens had become completely opaque. She is subject to pains on that side of the head, and to an inflammation of the eye recurring about once a month. Being very alarmingly threatened with ulceration of the lungs during three or four months; she continued for that time exempt from inflammation; but no sooner were the dangerous symptoms dissipated, than the inflammation returned. In truth, she is of opinion that whenever her eye is disordered her general feelings are best. Still it is probable that the result of this irritation must be, on the whole,

injurious. She does not, however, suffer sufficiently to render the extractions of the lens very important.

In another instance the lens pushed through the iris, pressed on the cornea, and brought on a painful state of the eye which continued nearly three years, then inflammation, suppuration, and ulceration in this membrane. Finding a small opening in the cornea, I enlarged it and removed the lens, which was found to be hard. The extraction of the lens, and discharge of pus, was not, however, followed by the relief which was expected, for the pain continued with dreadful severity. On examining the eye, I found a very firm opaque substance lying in the wound of the cornea, which I removed, and then threw warm water into the cavity of the eye, with the intention of removing any other substance of the same kind. This gave a temporary relief, but the pain soon returned. On reflection I was convinced that the disorder was kept up by the thickened and almost solid vitreous membrane. I therefore made a crucial incision across the cornea, even into the sclerotica, extracted the remainder of this substance, and completely relieved the patient. The wound afterwards healed, and he now wears a glass eye with great satisfaction.

A gentleman receiving a fall struck the edge of the orbit of the left eye. On the next day a great inflammation of the right eye appeared, and on examining it I found the pupil excessively dilated, and the vision of the eye lost. In six or eight weeks the violence of the inflammation subsided, and he is now very comfortable, although the eye is weak and requires to be protected from the air. The pupil remains dilated and immoveable. No degree of vision returns. I proposed to extract the lens, but at present he declines the operation.

A woman was suddenly seized with a violent pain on the right side of the head, followed by vertigo, delirium, fever, and symptoms of phrenitis. The inflammatory symptoms disappeared after a few days; but the pains continued, and she discovered that the sight of the right eye was lost. About the tenth day I saw her; found the eye much inflamed, very tender, and painful; and the pupil completely dilated and insensible to light. She was bled a pint; and on the succeeding days, had blisters behind the ears, very powerful purgatives and opiates at night. Finding her sufferings were not alleviated, nor the eye less inflamed, I

made a puncture in the cornea, introduced a probe, and found the crystalline lens pressing, as I expected, on the cornea. The incision was then enlarged with scissors, and the crystalline lens extracted. This operation was followed by some days of ease; but then the pains returned, with as much severity as ever. After this, finding she was not permanently relieved by bleeding, blistering nor a slight salivation, and that the vitreous humour was projecting through the wound in the cornea, I removed the protruded part of this substance, still however the pains continued excessive. On which I passed a cataract knife into the cornea made a large crucial incision, gave vent to a considerable part of the discoloured vitreous humour and thus relieved her. Since then she has been recovering.

The cause of spontaneous dislocation of the crystalline lens is not known. This accident must arise from a change in the lens itself, or in its capsule. In some of the cases, I believe the lens has been evidently disordered, before the symptoms of dislocation took place, which would make it probable that the cause of the disorder resides in the lens; and I recollect to have dissected a decayed eye, in a subject examined for another purpose, in the cavity of which was found nothing but a little watery fluid and a stony crystalline lens. In this case there cannot be much doubt, that the petrified lens had caused absorption of its capsule, and thence escaping had pressed on other parts and brought on inflammation and ulceration of the eye, followed by a discharge of the contents of the globe, and a condensation of its coats into a single membrane.



POTASSIUM.

[To the Editors of the New-England Journal.]

GENTLEMEN,

I OBSERVE in the second part of the Philosophical Transactions for 1814, a paper "On an easier mode of procuring Potassium by Smithson Tennant, Esq.;" The improvement in the process consists in distilling iron turnings and potash together;

and consequently a more simple apparatus may be employed.—That potassium might probably be procured by distilling iron turnings and potash was suggested to me in June 1813, by Professor Gorham, and I immediately made the experiment.* The apparatus employed was similar to that described by Mr. Tennant, and consisted of a gun barrel about 20 inches long closed at one end.—Iron turnings and fused potash were mixed and introduced; a stop cock was luted into the open end of the barrel, connected with a glass tube opening under Spirits of Turpentine. On exposing the potash and iron filings to a white heat, potassium quite pure was obtained, it sublimed and concreted around the stop cock, from which it was detached.—The merit therefore of the improvement belongs equally to Mr. Tennant and Dr. Gorham.

I am &c.

J. F. DANA.

Cambridge January, 1816.

ON THE CLAVUS OR ERGOT OF RYE AND OTHER PLANTS,

BY JACOB BIGELOW, M. D.

MANY of the grasses and gramineous plants are subject to a disease, to which vegetable pathologists have given the name of *Clavus*. In this disease one or more seeds are usually enlarged or elongated, and project from the spike or panicle to which they belong; they are of an irregular form, a light and brittle texture, a dark colour and unpleasant taste; and, as far as experiments have been tried, they are incapable of germination.

Of the different kinds of grain, rye appears to be most subject to this disease; wheat is often affected with it; barley and oats are said to be also liable to it. It likewise appears in the smaller

* Dr. Gorham was present at the commencement of the experiment, but was obliged to leave the Laboratory before it was completed.

grasses both native and cultivated. I have observed it about Boston, in the Foxtail grass, *Alopecurus pratensis* ; and the Field Reed, *Arundo cinnoïdes*. Mr. Curtis noticed it in the Flote Fescue grass, *Festuca fluitans*. Others have seen it in *Phalaris Canariensis*, *Avena elatior*, *Lolium temulentum*, *Triticum repens*, *Phleum pratense*, &c.

Rye, if not the most subject to this disease, has at least most frequently attracted the notice of observers in its diseased state. Spurred rye appears to have occurred not only in France and the middle countries of Europe, but also in all the climates from Sweden on the north, to Italy on the south, in both which countries dissertations relating to its prevalence and supposed effects have been published. Owing to the occurrence of certain epidemics which for a time were attributed to this diseased grain, it became a subject of great interest to the community. Very different opinions were entertained in regard to its character, and more than thirty distinct treatises and memoirs were published at various times on this single morbid production of grain. In the United States it has lately come into notice as a medicine, and as a suspected cause of epidemic disease.

The circumstances, which cause the generation of ergot in grain, are obscure, and have led to many hypotheses. Agricultural observations, that have been made respecting it, seem to show, that low and moist grounds produce more spurred grain, than soil which is elevated and dry ; that the borders of fields are more subject to it than the central parts, and that new countries and grounds lately cleared, more frequently give rise to it, than fields which have been long cultivated. It is also said to abound most in rainy seasons.

A number of individuals have carefully watched the growth of ergotted rye in all its stages, but without coinciding in their reports as to its cause. Some have observed a viscid fermenting juice in the glumes, previously to the formation of the ergot ; others have detected small *Larvæ* of insects which being preserved, afterwards hatched into moths or butterflies. Among the more curious experiments relative to this subject, is that of the Abbe Fontana,* who planted in his garden a number of single grains of

* *Journal de Physique par Rozier* vii, 43.

The vegetable diseases produced by insects are so numerous and diversified, that scarcely any form of them need excite our astonish-

wheat and of rye, and upon the top of each placed several grains of ergot. The result was a crop in which both the wheat and the rye were infected with ergot. As far as this experiment goes, it seems to indicate something like contagion in the disease, which may very possibly take place through the instrumentality of insects.

The prevention of ergot in grain must depend upon the cause producing it. If it is occasioned by insects, a remedy may possibly be found in sowing none but pure grain, or in exposing the grain to some process which may destroy the ovula infesting it. Formerly the ravages of an insect in France called the Corn butterfly were prevented by drying the wheat in an oven with a gentle heat before sowing it.* On the other hand, should the cause exist in the weather or climate, a partial remedy can only be hoped for in the selection of situations least adapted to its production.

A chemical analysis of spurred rye has been made in France by various individuals. It is stated to afford carbonic acid and hydrogen, a foetid principle, a fixed oil in abundance, and a coal difficult to incinerate. Its extract putrefies very readily and its colouring principle is fixed only by alkalis.

From one to two centuries ago the spurred rye was suspected of producing certain epidemic diseases in different countries of Europe. These diseases are fully described in the numerous publications of the time, and in Encyclopedias and Medical Dictionaries ever since. As the propriety, with which these epi-

ment. We every day see very singular excrescences on trees, shrubs, and plants; the size and substance of which vastly exceeds what is necessary for the support and habitation of the larvæ they contain. Of these, galls and oak apples are familiar examples and by no means the most remarkable. It is one of the most astonishing instances of animal instinct and vegetable harmony; that an insect, by a puncture and deposit of its eggs, should so stimulate a plant, as to produce both a habitation and food for its offspring. Among the plants related to the grasses I have observed a rush, very common in the vicinity of Boston, (*Juncus polycephalos* Mx.) the seeds or at least chaffs of which frequently grow to an enormous size, and are so altered in appearance that it would be nearly impossible to recognize the plant, were it not for the peculiar internal structure of its leaves. On opening these chaffs, or calyces, every one of them is found to contain the larva of an insect.

* Darwin's Phytologia, 363.

demics were attributed to the ergot, has been discussed from a respectable source in the preceding pages of this journal; it is not necessary to dwell here upon the subject. It is sufficient to remark, that one of these diseases, the dry gangrene, has long ago disappeared, although the supposed cause has continued ever since: the other, a convulsive disorder, was successively ascribed to a variety of causes, one of the last of which was a weed among corn,* (*Raphanus raphanistrum*) which obtained so much credit, as to give a name to the disease (*Raphania*) in the Nosologies of Linnæus and Cullen. In New-England we have both the weed and the spurred rye, but no *Raphania*.

To ascertain whether spurred rye be really inimical to health and life, a great number of direct experiments upon animals have been undertaken by different individuals. These trials would doubtless have settled disputes relative to the properties of the article, had it not been for the wide and unaccountable difference which has appeared in their results.

M. Salerne, who published a memoir in 1748, states, that he gave the spurred rye mixed with bran to a pig for the space of a month. The animal declined continually and at length died with marks of inflammation and gangrene in the intestines and liver. M. Read in like manner fed a pig with bran and ergot, which died gangrenous on the nineteenth day. He also killed flies in a few minutes with a decoction of ergot mixed with honey. The Abbe Tessier found the spurred rye fatal to a number of birds and quadrupeds, such as ducks, turkeys and pigs. These animals died with external and internal marks of gangrene. The same author asserts that so great was the repugnance of animals to this vitiated grain, that many would die of hunger in preference to swallowing it.

On the other hand, there are writers who deny, that effects so deleterious can have ensued from the use of ergot. Model fed pigeons for some time upon spurred grain, without any injurious consequences. Schleger made many experiments with it upon flies, dogs, fowls, a hog, a sheep and other animals without causing them any injury. He also states that the powder applied externally to a recent wound proved perfectly harmless. Parmentier gave the ergot both whole, and made into bread, to pi-

* *Amœnitates Academicæ*, Vol. VI.

geons, fowls and a dog ; he also took himself half a drachm a day, in the morning fasting, for a week ; and ate the flesh of the pigeons and fowls kept upon it ; without the least inconvenience. Professor Murray* states the instance of two beggars who took every day an ounce of bread containing three drachms of ergot, for eight days, and remained all the time in good health.

From the discordant reports of the foregoing experiments it is obvious, that an impartial inquirer can draw from them very little satisfactory information. An extension of inquiries on the subject to other writers does not seem to remove the confusion, or lessen the number of contradictory inferences and results. On this account we may, without impropriety, set aside what has been said upon the subject in Europe, and attend only to the observations and inquiries into the properties of spurred grain which have been made in our own country.

Since its medicinal qualities began to excite notice, the ergot of rye has been continually observed, in various parts of the northern and middle states. I do not know that definite observations have been made in regard to the kind of soil producing it, except that new grounds, or the soil of tracts newly cleared up, are more disposed to give rise to it, than old fields, or those that have been long cultivated. Spring rye is considered by some to be more liable to it, than that which is sown in the fall. Wheat appears to be affected by the same circumstances, as rye ; and considerable quantities of the ergot of that grain, brought from Vermont, have been offered for sale at the druggists' stores in Boston.

The spurred rye of this neighbourhood has a peculiar nauseous taste attended with very little acrimony. When snuffed up the nostrils it does not prove sternutatory. Taken into the stomach, in some individuals, it occasions nausea in the dose of a scruple. A drachm excites greater nausea, and in many instances produces vomiting. It has not in general appeared to quicken the motions of the alimentary canal. Large doses have occasioned head-ach and temporary febrile symptoms.

The most remarkable effect of spurred rye, and that for which it has come into medicinal use in this country, is its power of

* Apparatus Medicaminum, Vol. V. Where the preceding cases are stated.

acting, under certain circumstances, specifically upon the uterus. This property was first announced to the public by Dr. Stearns of New York state, in 1807. It has been further investigated and discussed by Dr. Prescott of Massachusetts in a dissertation published, 1813, and by various writers in the different Journals and gazettes. The use of this article in medicine is, to the best of our knowledge, an exclusively American practice, and if it is now introduced into any part of Europe, it must be from the publications of this country.*

It is now well ascertained by the experience of a number of years that the spurred rye given to parturient women, has an unequivocal effect, in increasing the force of the uterine pains and hastening the delivery of the child. This effect it sometimes fails to produce, but its failures are not more frequent than those, to which almost any other article in the materia medica is liable. Its character as a medicine is so well established that a majority of practitioners in Boston and probably throughout this state, are in the habit of employing it in cases, where a medicine of this sort is indicated. Under proper regulations it may be considered a valuable addition to the present stock of medicinal agents

When given prematurely, or under improper circumstances spurred rye has proved injurious to the mother, and still more frequently to the offspring. The first cautionary hints, on this subject were given in this Journal more than four years ago. When administered at too early a stage, or while considerable obstacles to delivery exist; it creates unnecessary suffering to the mother, and endangers the child's life. The principal circumstances which contraindicate its use, may be found in the various notices that have been published on the subject. Among them may be mentioned earliness of the stage, rigidity of the soft parts, any unfavourable conformation, or any presentation that requires changing.

From its power of stimulating the gravid uterus, practitioners have been led to try its effects on the uterine system under other circumstances. In the disease of amenorrhea it has been given

* Dr. Prescott's dissertation read before the Massachusetts Medical Society, has been republished in England, and translated into French by M. Charbonnier.

to a considerable extent, with various success in the hands of different physicians.

Dr. Thacher mentions one or more cases in which the obstructed catamenia were restored by a small quantity, a drachm only, of this medicine. Dr. Prescott and some others have mentioned cases of its failure. I have given in two instances an ounce in substance, in the course of a week, without effect. But the following statements communicated to me by a medical friend* appear to contain more extensive trials, both of the efficacy and safety of the medicine, than any I have met with. His statements are as follow.

“The case in which I gave the greatest quantity of Ergot was one of Amenorrhea and happened about three years since. The quantity of the medicine taken was six ounces. The patient was furnished with the ergot at two different times, two ounces, the first ; and four, the second time. The medicine was prepared with a quart of water to an ounce of ergot, boiled down to a pint. The first quantity, as directed, was taken in five days ; but the second, from the great solicitude for relief, was taken in less than four days, so that more than an ounce was taken in a day. The patient was relieved, no unpleasant effects occurred at the time, and she has remained in perfect health ever since.

“The next case of magnitude was Mrs. T. She has taken the ergot for amenorrhea at three different times at the rate of four drachms a day. An ounce relieved her the first, the same quantity the second, and two ounces the third time. No dangerous symptoms happened to her on any of the occasions, and she has enjoyed as good health since, as she ever did before.

“I have given half an ounce per day to another person for four successive days, without any ill effects, but without giving the relief desired.—Four other persons by my direction have taken an ounce each in the quantity of half an ounce per day, with perfect relief and without injury.

“The symptoms produced in the seven preceding cases, as far as I have learnt them, were head-ach, increased heat of body, and occasional pain in the hypogastric region. Probably sickness of the stomach may be added, although I have not always noticed it.”

* John Randall, M. D.

The foregoing cases sufficiently show that the spurred rye may be given to a very considerable extent, without other injury than the temporary inconvenience which occurs at the time of its exhibition. It would also seem entitled to the reputation of an emmenagogue, at least as much so, as many remedies of that uncertain class, which are now in use.

In regard to the preparations of this medicine, the infusion and decoction appear to extract all its active properties. The latter operates more speedily, than where the crude powder is given. The dose usually administered to women in labour is from ten grains to half a drachm in decoction, to be repeated if necessary. Some practitioners begin with a drachm. Patients who have taken this last amount, frequently vomit before, or after delivery.

The ergot of *wheat* has been the subject of a few trials, which serve in some degree to establish its affinity to that of rye. Its taste is equally nauseous and somewhat more unlike that of the original grain. I have seen it occasion nausea in the dose of a scruple, and vomiting when a drachm had been given. In some cases of labour it has evidently increased the uterine efforts; in one it produced no effect.

In regard to the agency of spurred grain in generating the epidemics, which of late years have appeared in various parts of the United States; the question is too extensive to be hastily decided on by an individual. The suspicions which have been cast upon this article, no doubt had their origin in the terrors which it formerly excited in Europe. It is probable, if the ergot has any instrumentality in generating disease, that it requires, to say the least, the assistance of some co-operating cause; since we have seen that it can be taken to a greater extent, than it ever would be for the purposes of food, without any permanent injury; and also since we have sufficient evidence, that it has existed in this country long before the diseases that have been laid to its charge; and when people were not led to avoid its use, by any knowledge of its medicinal powers.

Since however the ergot in large quantities would prove injurious in food, from its medicinal agency; and in smaller quantities would impair the taste and nutritive qualities of bread; it is always desirable that it should be separated as far as possible from the sound grain. This may be accomplished

to a sufficient degree, by care in the process of winnowing. The grains of ergot being lighter and generally larger than the sound grains, are either detained by the sieve, or blown away by the wind. Those who collect ergot for the druggists have told me that they procure it in larger quantities from the chaff, than from the grain. It is probable that in all cases if the winnowing be properly repeated, the grain will without difficulty be made sufficiently pure for use.

ON ERGOT IN LABOUR.

[To the Editors of the New England Journal.]

GENTLEMEN,

HAVING frequently made use of the spurred rye in cases of labour, and having attended to the observations of a number of my fellow practitioners upon the subject, I beg leave to suggest through the medium of your publication, some of the cases in which it has been, or may be found useful.

1. In late stages of lingering labour, where the strength of the patient is exhausted with inefficient pains; and where the remaining obstacles to delivery appear to consist, not in resistance to the progress of the child, but in the insufficiency of the uterine efforts. Every practitioner accustomed to its employment must have seen the most satisfactory instances of relief afforded by it in these cases, without the attendance of any unpleasant consequence. Instances sometimes occur under its use, where children are born in a torpid state, and are with difficulty resuscitated. A few have been lost, from long continued pressure upon the head, occasioned by the constancy of the pains. But similar instances from the same causes will now and then take place where no ergot is given. We may also reasonably hope, that future experience will so far establish the dose, preparation and mode of exhibition of this medicine, that it may be given without apprehension, and with a tolerable certainty of the effect for which it seems calculated,—the promotion of regular and efficient labour.

2. Where the child is dead. In this case labours are often lingering, and nothing is to be apprehended from the proper use of ergot. In some instances however of this kind, it has appeared less active, than it is under ordinary circumstances.

3. In retention of the placenta. I have given it in two cases of the hour-glass contraction, with immediate relief.

4. In uterine hæmorrhage. It is commonly noticed, that there is less flooding after cases in which ergot has been employed, than when it has not. In several instances of a profuse discharge of the lochia, it has been given with great benefit. In the case of a woman who had suffered excessively by flooding in all her previous labours, it was given to a considerable extent, and no troublesome hæmorrhage occurred.

5. In lingering cases of abortion, where miscarriage has become inevitable, and it is desirable to abridge the term of hæmorrhage and confinement. In one case of this kind it has failed to give relief, but future experience may find it serviceable.

I am, gentlemen, yours,

A PRACTITIONER.

MORBID ANATOMY.—No. VI.

BY JOHN C. WARREN, M. D.

ABOUT the time of the violent gale or hurricane of September 24, 1815, people began to complain of colds and sore throats; and within a week after, an epidemic prevailed in Boston, which extended more generally than any before known. The invasion of this disease was often most sudden, the patient passing at once from a state of health to that of severe disease; in others, the symptoms of catarrh were its precursors. The symptoms were chills, followed by fever; pain, soreness and rigidity in the muscles, sometimes to a most distressing degree; nausea and vomiting; stupor; pulsating pain in the head, increased on motion; in bad cases, loss of sense; soreness and pain in the eyes; copious discharge of fluids from the nostrils; soreness of the throat; stricture and soreness across the breast; pain in the side of the breast, and dry painful cough. The violence of the symptoms usually abated in three days. Children were rarely affected;

women less frequently than men ; and the aged most dangerously. Of three fatal cases, two occurred in persons above sixty ; the other in a labourer of forty, who had been peculiarly exposed, by sleeping all night on the ground in the open air. Many persons were left with weakness of the lungs, great susceptibility to catarrh, and disposition to phthisis pulmonalis.

This complaint raged during a great part of the month of October ; and at the beginning of November had nearly subsided. Instances occurred during the following winter. Soon after its appearance in Boston, it manifested itself throughout the northern and eastern states ; thence travelled through the middle to the southern and western parts of the country, and appeared, as I am informed, in South Carolina in February.

A medical friend, whose opinion I value highly, considers the disorder as beginning to appear before the hurricane.

An emetic usually mitigated the symptoms of this complaint. Some purgatives were almost always required. The very bad cases demanded bleeding.

Dissections. R. A. aged forty, was attacked with acute pain in the right side, violent distress in the head, cough, hard quick pulse, and great heat of the skin. He was bled ; had an emetic ; was blistered extensively, &c. The symptoms were at first relieved ; they afterwards returned, and were not affected by subsequent applications. He remained in a state of stupor for ten days and then expired.

On examination of the body after death, the abdominal organs were found to be of a healthy appearance. In the thorax, the right lung was inflamed, both its serous membrane and its substance ; the latter was firm and unyielding. The substance of the inferior lobe was more disordered than the other. The pleura, besides being inflamed, was covered with coagulated lymph. The mucous membrane of this lung was inflamed. The cavities of the bronchial tubes were filled with a thick cream coloured mucus. The left lung was in a healthy state. The serous membrane of the brain was much inflamed, and in some parts covered by lymph, and contained a quantity of serous fluid.

Mrs. R. a lady of 62, was seized with very acute pain in the right side, followed by heat of the skin, hard quick pulse, and little cough. Tongue slightly furred. In about thirty hours after the invasion of the disease the pain in the side lessened, she be-

came stupid, and died on the third day from the invasion of the disease.

On examining the body, it appeared that the inferior lobe of the right lung was greatly inflamed. The membrane covering it was of a red colour, but the substance quite black, and very firm to the touch. The corresponding part of the diaphragm was also inflamed. The brain could not be examined.

The third fatal case occurred in a gentleman of about 70, who was affected with the disorder so slightly on the first and second days, that he declined taking medicine; his principal complaint was a stricture across the breast and some degree of febrile action; on the third day he became perfectly insensible, and died on the fourth.—No examination was made.

Common opinion has ascribed this epidemic to the storm of the 23d. The medical gentleman, alluded to above, is certain that he saw two or three cases, which commenced previous to that time. I recollect being called to a gentleman, violently attacked with a catarrhal affection on the evening before the gale; and on visiting him on the morning of that day, found him completely relieved. The lady, whose fatal case has been mentioned above, was seized on the afternoon of the storm. I believe however that no one suspected the existence of an epidemic sooner than 5, 6, or 7 days after; though I recollect that on the 4th day, a question was made among three or four physicians, accidentally assembled, whether catarrhs had not been unusually frequent since the storm.—In consequence of various accidents, which occurred at the time, I was under the necessity of being abroad during the whole of the storm, and felt at the time quite penetrated by the wind, and in the same afternoon experienced the first symptoms of catarrh. These continued in a peculiarly uncomfortable degree until the evening of the eleventh day following; when a severe chill occurred, and afterwards the full violence of the disorder. Other persons affected with it have described similar sensations, commencing during exposure to the wind, which never subsided to the moment of their feeling the influence of the complaint. So far as my observations and inquiries have extended, a much greater proportion of persons, exposed to the storm were affected by the influenza, than of those who were not thus exposed.

REVIEW.

An Essay on the Theory of the Earth, translated from the French of M. CUVIER, perpetual secretary of the French Institute, professor and administrator of the Museum of Natural History, &c. By ROBERT KERR, F. R. S. With mineralogical notes, &c. by Professor JAMESON. Edinburgh, 1815.—8vo.

THE name of the illustrious author, and not the title of the work, must afford the motive, which will excite most readers to the perusal of this volume. Theories of the earth have been so numerous, and many of them so fanciful and visionary, that in most instances we can anticipate but little solid instruction, for the time and labour spent in their examination. They are often the productions of closet philosophers, men who in their elbow chairs, have summoned comets around them to be the agents of their fancy ; who have kindled or extinguished suns at pleasure ; and who by a stroke of their pens, have suspended or reversed the unalterable laws of matter.

The circumstances under which professor Cuvier has attempted an history of the earth, are different from those of his predecessors. He has qualified himself for the task by a course of long and laborious observation, by a patient study of the features now exhibited by the globe, and especially by an intimacy, far surpassing that acquired by any other individual, with the remains of organized bodies, which have, in different places and periods, been brought to light ; as vestiges of remote antiquity, and relics of an unknown state of things. "It is my object," says he, "to travel over ground which has as yet been little explored, and to make my reader acquainted with a species of remains, which though absolutely necessary for understanding the history of the globe, have hitherto been almost uniformly neglected. As an antiquary of a new order I have been obliged to learn the art of decyphering and restoring these remains, of discovering and

bringing together in their primitive arrangement, the scattered and mutilated fragments of which they are composed, of re-producing in all their original proportions and characters, the animals to which these fragments formerly belonged ; and then of comparing them with those animals which still live on the surface of the earth ; an art which is almost unknown, and which presupposes what had scarcely been obtained before, an acquaintance with those laws which regulate the co-existence of the forms by which the different parts of organized beings are distinguished. I had next to prepare myself for these inquiries, by others of a far more extensive kind, respecting the animals which still exist. Nothing except an almost complete review of the creation in its present state, could give a character of demonstration to the results of my investigations into its ancient state ; but that review has afforded me at the same time a great body of rules and affinities, which are no less satisfactorily demonstrated ; and the whole animal kingdom has been subjected to new laws in consequence of this essay on a small part of the theory of the earth."

It would be impossible on this occasion for us to convey in their full weight the facts, arguments and inferences stated by the learned author in the work before us. We can only follow him through the most important result of his researches and observations.

M. Cuvier gives us convincing proofs that the globe we inhabit has in former times been the subject of revolutions numerous, sudden and extensive ; that of these revolutions a part preceded the existence of living beings, while others of later date have involved in the ruin they occasioned, whole races of organized creatures, inhabitants of the regions overwhelmed. He asserts that the lowest and most level parts of the earth when penetrated to a great depth almost all of them present horizontal strata containing *marine* productions. Similar strata often compose the hills to a considerable height. The shells and remains of marine animals are found in the most perfect preservation, affording irresistible evidence that the sea once covered all our plains and rested tranquilly upon them for a great length of time, sufficient for the generation and growth of the animals, whose exuvix are so quietly and so abundantly deposited.

Beneath these horizontal strata are found other strata, situated in various directions, obliquely or even vertically ; like the first containing organized remains, but of different genera and species. They penetrate deep into the earth, or shoot up into cliffs and hills ; they support the horizontal strata, but are never supported by them. These oblique strata are therefore the most ancient of the two, they must have been originally formed in the horizontal position, but afterwards broken up and shifted to their inclined or vertical position, before the horizontal strata were placed above them.

From the relative positions of the strata, from the different species of beings whose relics they contain, from the repeated succession and alternation of land and sea animals, of those of fresh water with those of salt ; from the variety of situations in which these remains are found, it appears that sudden catastrophes occurring one after another at indefinite spaces of time, have arrested successive orders of living beings, and blotted out from the creation one set after another, of animated inhabitants. "Life," says M. Cuvier, "has often been disturbed on this earth by terrible events—calamities which at their commencement have perhaps moved and overturned to a great depth the entire outer crust of the globe, but which *since the first* commotions have uniformly acted at a less depth and less generally. Numberless living beings have been the victims of these catastrophes ; some have been destroyed by sudden inundations ; others have been laid dry in consequence of the bottom of the sea being instantaneously elevated. Their races even have become extinct, and have left no memorial except some small fragments, which the naturalist can hardly recognize.

"But what is still more astonishing and not less certain, there have not always been living creatures on the earth, and it is easy for the observer to discover the period at which animal productions began to be deposited.

"As we ascend to the highest points of elevation and advance toward the lofty summits of the mountains, the remains of marine animals, that multitude of shells we have spoken of, begin very soon to grow rare and at length disappear altogether. We arrive at strata of a different nature which contain no vestiges of living creatures whatever. Nevertheless their crystallization and even the nature of their strata shew that they also have been

formed in a fluid; their inclined position and their slopes shew that they also have been moved and overturned; the oblique manner in which they sink under the shelly strata shews that they have been formed before these; and the height to which their bare and rugged tops are elevated above all the shelly strata, shews that their summits have never again been covered by the sea, since they were first raised up out of its bosom."

From the foregoing statements our readers will be able to gather the most important results of M. Cuvier's theory. They will understand with him, that the most ancient solid parts of our earth bear evidence of having been originally and quietly formed in a fluid, and of having for a certain period existed without inhabitants. That these primeval strata were disturbed and broken up by tremendous convulsions, and were thrown into the irregular situations in which they now appear, descending into the earth or rising into cliffs and precipices. That in the lapse of time new strata settled upon the depressions and inequalities of the old, and became peopled at some unknown period with various species of the animal and vegetable kingdoms. Subsequent convulsions assailed these secondary strata in their turn, and with them overwhelmed their various organized inhabitants. How often and how frequently this process of destruction may have been repeated it is impossible to decide, but the different species of organic remains which characterize different strata, clearly indicate that different orders of beings have been destined one after another, at distinct periods of time, to experience events subversive of their places, and fatal to their existence.

The peculiarity of M. Cuvier's researches, and the superiority of his advantages over those of other geologists, depend upon the path he has chosen for his investigations, and the profound and accurate knowledge he has acquired with regard to every species of the fossil remains of organized bodies. He strongly inculcates the importance of studying these fossils, and makes them the chief foundation of our knowledge of the history of the globe. "It is to them," says he, "that we owe the commencement even of a theory of the earth, since, but for them, we could never have suspected that there had existed any successive epochs in the formation of our earth, and a series of different and consecutive operations in reducing it to its present state. By them alone we are enabled to ascertain with the utmost cer-

tainty, that our earth has not always been covered over by the same external crust; because we are thoroughly assured that the organized bodies to which these fossil remains belong, must have lived upon the surface before they came to be buried, as they now are, at a great depth. It is only by means of analogy that we have been enabled to extend to the primitive formations the same conclusions which are furnished directly for the secondary formations by the extraneous fossils; and if there had only existed formations or strata in which there were no extraneous fossils, it could never have been asserted that these several formations had not been simultaneous."

After dwelling somewhat longer on the importance of studying the extraneous fossils found in the earth, M. Cuvier states that from the extensiveness of the field, only an inconsiderable part of it can be cultivated by the labour of an individual, and it therefore became necessary for him to select a particular department, as the principal object of investigation. He has accordingly chosen the class of quadrupeds, whose bones and fossil remains he asserts must lead to more accurate conclusions than any other remains of organized bodies, for several reasons. These are, that they indicate more clearly the nature of the revolutions to which they have been subjected. The appearance of their bones in strata, and still more of their entire carcasses, clearly establishes that the bed in which they are found, must have previously been dry surface, or at least that dry land must have existed in its immediate neighbourhood. Their disappearance as certainly announces that this stratum must have been inundated, or that dry land had ceased to exist in that state.—Upon quadrupeds the revolutions, which consisted chiefly in changes of the bed of the sea, must have exerted a more powerful influence than upon marine animals, and the waters must have destroyed whole genera, or species, or only individuals according as their irruption was more or less general.—Lastly, the effect of inundations upon this class of animals is more easily ascertained and demonstrated, than upon any other, because the number of terrestrial quadrupeds is limited, and as most of their species, especially the large ones are well known, we can more easily determine, whether fossil bones belong to a species which still exists, or to one which is now lost.

In a subsequent part of the work M. Cuvier dwells upon the difficulty which the naturalist finds, in distinguishing the fossil bones of quadrupeds. This consists partly in the circumstance that the distinguishing characters of quadrupeds have hitherto been chiefly founded on their external marks, rather than upon their internal structure; and that even the skeletons are rarely found in a complete state, but occur generally in separate bones and scattered fragments.

"Fortunately," says he, "comparative anatomy when thoroughly understood, enables us to surmount all these difficulties, as a careful application of its principles instructs us in the correspondence and dissimilarity of the forms of organized bodies of different kinds, by which each may be rigorously ascertained from almost every fragment of its various parts and organs."

He then enlarges upon the necessary correspondence and reciprocal relations between different parts of the same animal, combining towards the same end. These relations he affirms are so uniform and unvarying that no one part can change its form without a corresponding change on the other parts of the same animal. After illustrating this subject at large in a number of pages, M. Cuvier at length arrives at the most astonishing and extraordinary results. He asserts that "the smallest fragment of bone, even the most apparently insignificant apophysis, possesses a fixed and determinate character relative to the class, order, genus and species to which it belonged; insomuch that when we find merely the extremity of a well preserved bone, we are able by careful examination, assisted by analogy and exact comparison, to determine the species to which it once belonged as certainly as if we had the entire animal before us."

An assertion of this kind coming from an individual of less respectability than professor Cuvier might perhaps have been deemed incredible. But the respect, which is due the advantages and indefatigable industry of this eminent philosopher, has claims upon our assent not easily to be resisted. "Before venturing," says he, "to put entire confidence in this mode of investigation in regard to fossil bones, I have very frequently tried it with portions of bones belonging to well known animals, and always with such complete success, that I now entertain no doubt with regard to the results which it affords. I must acknowledge that I enjoy every kind of advantage for such investigations that

could possibly be of use, by my fortunate situation in the Museum of Natural History; and by assiduous researches for nearly fifteen years, I have collected skeletons of all the genera and subgenera of quadrupeds, with those of many species in some of the genera and even of several varieties of some species. With these aids I have found it easy to multiply comparisons, and to verify in every point of view the application of the foregoing rules."

Upon the principles now described, M. Cuvier has ascertained and classified the fossil remains of seventy-eight different quadrupeds of the viviparous and oviparous classes. Of these *forty-nine* are distinct species hitherto unknown to naturalists. Eleven or twelve others have such entire resemblance to species already known, as to leave no doubts whatever of their identity; and the remaining sixteen or eighteen have considerable traits of resemblance to known species, but the comparison of them has not yet been made with such precision as to remove all doubt.

An acquaintance with these wonderful and interesting objects can only be obtained from the great work of Cuvier upon the fossil remains of quadrupeds, in which the result of his investigations is given at length. No individual beside him has ever succeeded in arranging and classifying the gigantic remains of unknown animals, and presenting us the characters and habits of species that have long since ceased to exist. He has made us acquainted with the fossil race of *Mastodons*, at the head of which stands the American Mammoth; an herbivorous genus of five species, of which no living individual has been discovered within the memory of man in any part of the world. He has presented us with extinct or fossil species of the Rhinoceros, the Hippopotamus, the Tapir, the Elephant, of which last the bones are found throughout northern Europe, and quite lately an entire carcass was discovered by professor Adams in the north of Siberia frozen up in a mass of ice, constituting the most wonderful relic of an extinct species hitherto brought to light. Our admiration is excited by the new and singular genera *Palæotherium* and *Anoplotherium*, the former containing ten species, the latter five; the only vestige of whose existence is found among the wrecks and fragments of an extinguished creation. We are irresistibly struck with the dimensions of the fossil Elk of Ireland, the extremities of whose horns are nearly eleven feet asunder; and not

less with the gigantic lizard of the quarries of Mæstricht which measures twenty-four feet, the head alone being four feet in length.

In regard to the state in which we behold the world at present, M. Cuvier infers that its population is recent, and that its present surface is not of very ancient formation. He thinks that every circumstance contributes to establish the position, that the human race did not exist in the countries in which the fossil bones of animals have been discovered, at the epoch when these bones were covered up ; as there cannot be a single reason assigned, why men should have entirely escaped from such general catastrophes ; or if they also had been destroyed and covered over at the same time, why their remains should not be now found along with those of the other animals. " I do not however presume," says he " to conclude that man did not exist at all before these epochs. He may have inhabited some narrow regions, whence he went forth to re-people the earth, after the cessation of these terrible revolutions and overwhelmings. Perhaps even the places which he then inhabited may have been sunk into the abyss, and the bones of that destroyed human race may yet remain buried under the bottom of some actual seas ; all except a small number of individuals who were destined to continue the species."

The Mosaic account of the deluge and subsequent renewal of the human race is evidently corroborated by the researches of our author, since he decidedly infers that the epoch of a great and sudden revolution, which buried all the countries that are now best known, cannot be dated much farther back than five or six thousand years ago, and that only since that epoch, the human race has resumed a progressive state of improvement, by forming societies, raising monuments, collecting natural facts, and constructing systems of science and learning.

In the imperfect account we have given of this interesting work, we have omitted to notice its historical researches and deductions, and have failed to do justice to many of its particular statements and details. In combining the character of naturalist and antiquary the author has opened to himself a new field of archæological research unobscured by fable and exempt from the uncertainty of tradition. He has read the history of the primitive ages of the world in characters, which cannot well deceive ; which were impressed by the very events they commemo-

morate ; which have been extant for thousands of years, but which no individual before himself has had the honor of decyphering. By establishing the science of comparative anatomy upon a basis of rigorous exactness, he has drawn historical facts from the same appearances, which his predecessors had passed over with useless wonder, as unaccountable *lusus naturæ*, as bones of giants, or as “skeletons of fallen angels.” He has opened a path of research to future investigators, which will bring to light new wonders from the bosom of the earth, which may establish with more precision the events and successive æras in the history of the world ; which must yet disclose to us multitudes of unheard of species, and which may throw unexpected light on the chronology of our own.

Traité des Hémorroïdes. Par JOSEPH BRICE DE LARROQUE,
Docteur en Médecine, de la Faculté de Paris.

A work with the above title made its appearance in Paris in the year 1812, and we are not aware that there has been any review or translation of it, either in Great Britain or this country. If any other apology is necessary for giving an account of the contents of the volume, it may be remarked that the author has introduced several new opinions respecting the nature of hemorrhoidal tumours which deserve a thorough and candid examination.

The treatise forms an octavo volume of 270 pages, and is divided into twenty-three chapters. In the first chapter the author examines the different definitions that have been given of the disease, and after stating several objections to each of them, he offers the following as being much more correct. “Hemorrhoids,” says he, “consist in a discharge of blood furnished by vessels that are distributed to the rectum, most frequently preceded or accompanied by little tumours around the anus.” This definition differs from others chiefly in this, that the blood is not supposed to come from the veins ; and he afterwards endeavours to show, that it is thrown out by exhalation from the arteries, “as in all spontaneous hæmorrhages.”

In the second chapter he makes a division of hemorrhoids founded upon the discharge of blood, which he considers to be either active or passive. He then proceeds to point out the state of the system under these different circumstances, and enumerates the symptoms that precede and accompany them. He notices also the more common division of external and internal hemorrhoids, founded upon the situation of the tumours; a division which is by no means invariably correct, as the same tumours are sometimes within the rectum and sometimes on the outside of it.

The third chapter is devoted to an account of the remote and exciting causes of the disease. It is hardly worth the time to enumerate these, as he has given at least thirty, which he considers as having a greater or less tendency in producing it.

The symptoms which precede and accompany this disease he divides into local and general. These are very accurately described, and it may not be amiss to translate his account of the local symptoms. "In the commencement of the disease the patients commonly experience an inconvenient itching at the extremity or within the rectum; soon after, this itching is changed to a sharp pain, which sometimes is almost insupportable; the heat is also very great and even burning; the parts around the anus are more or less swelled and become red. At times these symptoms are accompanied with a sense of weight, which extends from the rectum down to the perinæum, and with a spasmodic contraction of the external sphincter."

Several pages contain an account and explanation of the general symptoms, many of which, he says, attend other diseases. A chapter is devoted to the varieties of hemorrhoids, in which several cases are related with remarkable and anomalous symptoms. In the sixth chapter the author comes to the examination of a very important subject, which is noticed still further in a subsequent part of the book, viz. the nature of hemorrhoidal tumours. "Of all the errors prevalent in medicine," says he, "there is no one more deeply rooted than that of believing that hemorrhoidal tumours are formed by the varicose dilatation of veins. This opinion is so common, that there are none I believe, except Duncan, Cullen and Recamier, who have not sanctioned it." He thinks it by no means wonderful that Hippocrates believed in it, considering that in his time, there was

no well marked distinction between veins and arteries, and no opportunities were offered for examining dead bodies. It is however considered astonishing that Morgagni, who examined so many bodies with so much care, should assert that hemorrhoides were nothing but varices of veins. "*Hemorrhoides nihil aliud autem esse quam varices venarum.*" There are still some things, the author observes, that seem to favour this opinion; such as the situation of the internal hemorrhoidal vein, its length, which is greater than that of the other branches of the vena porta, the deficiency of valves in this vein, the perpendicular situation of the human body, and the pressure of the blood upon the venous extremities of the rectum. But though these circumstances are favourable to the varicose swelling of the veins of the rectum, is it certain that hemorrhoidal tumours result immediately from this passive dilatation? "Morbidity teaches us," says he, "that these tumours are of two kinds, sometimes cellular or spongy, as described by Le Dran; at other times encysted, as has been observed by Recamier." If the first kind of tumour is cut through, it is found to be a homogeneous parenchyma, oftentimes of a reddish colour, which changes to a white when macerated. If, before it is washed, this tissue is squeezed there issues from it as from a sponge, pure blood, bloody serum, or a very limpid serous fluid. In these cases, if there are varicose veins, they are minutely ramified upon these tumours, but do not penetrate them. "This general disposition of the veins," the author remarks, "gives a new proof that the hemorrhoidal tumours do not depend upon varicose veins, for if they did they would be spread in the tumours themselves and not upon the surface." Hence it follows that the dilatation of the veins is to be considered not the immediate cause of the disease, but merely as an attendant upon it, for when the hemorrhoids are recent, there are no appearances of varicose veins.

Several other arguments are offered against the prevalent opinion of the nature of hemorrhoidal tumours; these are derived from the effects that are observed when these tumours are cut, and from the different manner in which varices and hemorrhoids are developed. He speaks of the enlargement of varicose tumours, as being gradual; that of hemorrhoidal ones sudden; their form is also different; the former for the most part being

elongated, the latter usually round. The hemorrhoidal tumours are subject to a periodical sanguineous congestion and can degenerate into scirrhus and cancer; here then is another difference between them and varicose veins.

In hemorrhoidal tumours of the second species, that is the encysted, he says, he has always found the internal surface glossy and white when they are empty, and slightly reddish when they contain blood. The dilated veins which are sometimes connected with these hemorrhoidal tumours, are usually spread upon the skin and external parts, and do not communicate directly with the cyst. The membranous cavities which are found in these tumours, are liable to be mistaken for varicose veins, unless great care is taken.

In another chapter upon the nature of hemorrhoidal blood, the following important experiment is given. A woman aged 25 years died of a fever at the Hôtel Dieu, the 21st of July, 1811. She had four hemorrhoidal tumours, the two largest of which were external, and situated upon the sphincter of the anus. After opening the abdominal parietes, the hypogastric arteries were laid bare, the one of the right side was divided and the pipe of the injecting syringe was introduced into it. In order that the experiment might succeed the better, the iliac artery of that side was tied. This being done, the right hypogastric artery was injected with spirits of turpentine mixed with soot. After the two first strokes of the piston, the hemorrhoidal tumours became of a blackish colour. A mixture of fat, rosin and soot was then thrown in; a great number of small vessels was injected and the skin around the anus became black; but the hemorrhoidal tumours did not change colour. Some time after, all the injected parts were removed and an examination made. No appearance of dilated veins was discovered on the internal surface of the rectum; when the tumours were cut, small blackish capillary vessels were seen, some of which were filled with spirits of turpentine, the remainder, with the other injected mixture. These vessels were so distinct that they could be easily raised upon the point of a knife. This experiment was made by the author, Dr. Sause, and Mr. Sauson, assistant at the Hôtel-Dieu.

Another opportunity soon after presented, and a similar experiment was made with still more striking results. The

hemorrhoidal arteries were all filled with the injection, so that they could be traced into the hemorrhoidal tumours, where they terminated in an infinity of minute ramifications, which were also injected. No dilated vein could be discovered; the branches of the internal artery were injected and terminated also in the hemorrhoidal tumours. Mr. Descrambes of the hospital of Saint-Antoine, states in a letter to the author, that after injecting the left internal iliac artery, he found a hemorrhoidal tumour in the rectum completely filled with the injected matter. These experiments the author thinks, incontrovertibly prove, that the blood flows from arteries, in hemorrhoids, and not from dilated veins. In connection with this subject he inquires into the proximate cause of the hemorrhoidal discharge, and after examining the opinions entertained by others he proceeds to state and defend his own. He maintains that the blood in hemorrhoids is thrown out by exhalation from the arteries, as in epistaxis, hæmoptysis, menstruation, &c. and that the only difference of these hemorrhages consist in the parts affected. It is not important to examine the proofs that he has given of the correctness of this opinion, they consist chiefly of reports of dissections of parts affected with hemorrhoids, which he has recorded at great length. If we assent, to his opinion of the nature of hemorrhoidal tumours, we shall find it difficult to controvert what he says in regard to the proximate cause of the hemorrhoidal flux.

There are several other chapters, on the diagnosis, prognosis, treatment of the disease &c.; but as there is nothing new in what he says upon these subjects, it is unnecessary to make an abstract of it. In speaking of the treatment of the hemorrhoidal tumours, he is strongly opposed to the use of ligatures, as being oftentimes productive of serious and alarming consequences, and as "an operation upon the success of which it is impossible to calculate." On the whole this work is entitled to attention, not merely for the new opinions it contains, but for the clear and accurate manner in which the symptoms, progress and treatment of the disease are described. Though the author has carefully studied the writings of others and availed himself of their labours where he found it necessary, yet it is evident from the cases he records, that he has examined for himself and has tested the principles and observations found in books, by the appearances that the disease presents. A translation of the book would be an acquisition to our stock of standard medical works.

An Essay on dew and several appearances connected with it.

By WILLIAM CHARLES WELLS, M. D. F. R. S. London,
Taylor and Hessey, 1814.

THE common phenomena of dew are familiar to all men ; and many circumstances respecting its quantity at different times and under different states of the atmosphere, as also in different situations, have been noticed by antient as well as modern philosophers. Thus Dr. Wells states that " Aristotle and many other writers have remarked that dew appears only on calm and serene nights." That is, it appears abundantly only on such nights. Also dew has been found to be more copious in Europe, and in some parts of Asia and Africa, during southerly and westerly winds. " Aristotle says that Pontus is the only country, in which dew is more copious during a northerly than a southerly wind. But a similar fact occurs in Egypt." The occurrence admits the same explanation in each case, since the wind which comes from the sea, or the ocean will be the most fully saturated with water. For though some writers have supposed that the dew rises from the earth, yet Dr. Wells demonstrates what most have believed, viz : that this deposition, at least the greatest part of it, is made from the atmosphere, the water having previously been held in solution by the air. Not to enumerate other instances of facts noticed on this subject, Mr. Jefferson in his notes on Virginia remarks what Aristotle and Plutarch had already observed, " that dew is much less copious on hills than on plains."

All these observations are explained in the work before us in a manner most satisfactory. In 1784 the author was led "to think it probable that the formation of dew is attended with the production of cold." In 1788 this suspicion was confirmed by Mr. Patrick Wilson of Glasgow, and by Mr. Six of Canterbury in publications of the Royal Societies of Edinburgh and London. It was not until 1811 that Dr. Wells commenced the experiments related in this volume. The primary object of these experiments was to ascertain the real connection between the formation of dew and the diminution of temperature in the substances, near which it is formed. Does the dew cause the cold,

or the cold cause the dew ; and if the latter what causes the cold ?

By a course of experiments, numerous and tedious, pursued principally in the night, and conducted with the greatest circumspection, Dr. Wells has established a theory which explains at once the formation of dew and several other appearances related to it. It would be necessary to transcribe a great part of his book to lay all his experiments before our readers. It will be sufficient to state these results in the inferences which have been fairly made from them.

1. Heat radiates at all times from the surfaces of all bodies : but not equally ; for generally those, which are the worst conductors, radiate the most ; and, as has been shewn by Mr. Leslie, polished surfaces, especially of the metals, radiate less than those which are destitute of polish.

2. While the heat of bodies is diminished by radiation, it is restored directly and indirectly by the rays of the sun during the day-time, and by the heat radiating from other bodies at all times.

3. As bodies radiate unequally there will constantly be arising differences in their temperature from this cause. These differences will be in part, but not wholly, counteracted by the conducting power which in a greater or less degree exists in all bodies.

4. If a body which is a bad conductor, but which radiates heat freely, be so placed during the night as not to be exposed to the radiation from other bodies, its diminution of temperature becomes very considerable, so that heat will be conducted to it from other bodies placed in immediate contact with it.

Such is the situation of the surface of the earth in a calm and serene night. On such a night if you measure the temperature of grass on level ground, not closely surrounded by buildings nor by other elevated bodies, it will be found to be from 5 to 12 degrees colder than the atmosphere four feet above it. The difference will be still more if the temperature of the grass be compared with that of the atmosphere at a greater elevation.

The same results will follow (not in precisely the same degree) if wool, or swansdown, or any similar substance be placed

on the grass. If the wool be placed on a bench* elevated four feet above the ground the diminution of temperature will ordinarily be greater than when placed on short grass. Dr. W. supposes that when on short grass more heat will be conducted to the wool from the earth, than when raised on the bench. Grass not being a good conductor, if it be long, the reduction of temperature on its surface will not be compensated in the same degree by heat from the earth.

If the night instead of being calm, be windy the same reduction of temperature on the surface of the earth will not take place; since the surface will be receiving heat from the fresh portions of air constantly applied to it. In like manner if the air be confined over any spot, and its lateral motion prevented, the reduction of temperature will be, *cæteris paribus*, greater than on spots fully exposed to the wind.

5. The reduction of temperature on the surface of the earth will be less during the night, if there be interposed between it and the sky any body capable of reflecting its heat, or of radiating heat upon it.

Thus if you place one portion of wool on a bench (such as was described) and an equal portion be attached to its under surface, it will be found that, while the portion on the upper surface has lost 8 or 10 degrees of temperature, the portion on the under surface will not have lost more than 2 degrees. Similar effects will take place in respect to the grass if even a very thin substance be extended over it at a small elevation. Dr. Wells extended a thin cambric handkerchief at the distance of six inches over grass and found that the grass beneath preserved nearly its original temperature while that surrounding it was much reduced in temperature. The difference was from 5 to 11 degrees.

The same effects are produced by clouds. When the sky is overcast at night the earth does not become cooled as when the sky is clear; and the difference, *cæteris paribus*, is in proportion to the density of the clouds.—If clouds arise in a night which has been clear, the loss of temperature on the surface of the earth will be in great measure restored.

* The bench employed by Dr. Wells was "a painted board, 41.2 feet long, 2 feet wide and 1 inch thick, elevated 4 feet above the grass-plot by means of four slender wooden props of equal height." p. 14.

6. When the surface of the earth is cooled under the circumstances described, the lower stratum of air will communicate a portion of its heat to the surface ; and this effect will, as has been noticed, be greater when the air is most still over any portion of that surface. In proportion as the lower stratum of the atmosphere is cooled, the water, which it had held in solution, will be precipitated.

Hence the formation of dew ; and from what has been said the differences remarked in its quantity under different circumstances will be explained. The quantity is greatest in serene nights, when there is not any body to radiate heat to the earth ; in calm nights, when the lower stratum of air is allowed to rest long enough to become cool and to deposit its water ; in places sheltered from the wind for the same reason ; and when the wind has passed over the ocean, or some other large body of water, so that it is saturated with this fluid.

These facts have long been known ; and it had been observed by Wilson and Six that the formation of dew was accompanied by a reduction of temperature in the substance on which it is deposited. But the phenomena had not been explained. From Dr. Wells we have now learnt, first, that the dew does not cause the cold, as he himself had formerly believed, and as was thought by Mr. Wilson, but that the cold precedes the formation of dew and is the cause of its formation ; second, that the cold is not caused by evaporation,* nor by the low temperature of the air through which the dew descends, as supposed by Mr. Six, but by the radiation of heat from the earth's surface.

The principles ascertained by our author explain other phenomena which have been observed, but not understood. At night, when it is cool, gardeners throw a loose mat, or any slight covering over their plants to keep them warm. At this practice Dr. Wells says that he " had often smiled in the pride of half-knowledge." He learnt however that the effects are very important ; and thus has furnished another instance of the value of practical knowledge. He has rendered it probable that the evils often produced in the human body from exposure in the

* He proves the negative on this point by very satisfactory experiments.

evening arise in a great measure from the rapid expence of its heat by radiation, while it is not compensated from any other source. A fact we have often noticed accords with this, viz. that we are kept warmer in a chilly evening by holding an umbrella over the head, than when exposed to the sky.

But one of the most remarkable circumstances explained by Dr. Wells is the formation of ice in the hot regions of Asia. The inhabitants of Bengal have learnt by experience how to effect this, and he has shown by experiment that the results correspond with what would follow upon the principles he has established. Their method is as follows:—they conduct their operations on a large, open plain; they either make excavations in the earth, or surround small portions of ground with low walls (four inches high) of earth; these spots are covered with sugar cane, or stems of Indian corn, which not being good conductors of heat prevent the free passage of heat from the earth; on a layer of these substances are placed small, unglazed earthen pans in rows, near to each other; these pans are a quarter of an inch thick and an inch and a quarter deep; they are filled with water, which answers best if it be soft and has previously been boiled. Thus arranged, ice is formed in the pans. This does not happen however equally on all nights. Those nights are the most favorable, which are the calmest and most serene. Clouds and frequent changes of wind are found to prevent the formation of the ice, notwithstanding other things be favorable.

Dr. Wells makes it evident that in these cases the water loses its heat by radiation, while there is not any substance near to radiate heat upon it, and while there is not any substance surrounding it which is able to conduct heat to it in any considerable quantity. He formed ice on the same principles in a garden near London, when the temperature of the air was about 40 and that of the earth an inch below the bottom of the grass was 45.

The perusal of this Essay has given us great satisfaction. This satisfaction has been principally derived from the variety, the ingenuity, the simplicity, and the accuracy of the experiments it relates. For these the reader must look to the work itself, as likewise for the explanation of many natural phenomena not here adverted to.

A Treatise on the supposed Hereditary properties of Diseases, containing Remarks on the unfounded terrors and ill judged cautions consequent on such erroneous opinions ; with notes &c.

By JOSEPH ADAMS, M. D. F. L. S &c. &c. London, 1814.

THE leading objects which Dr. Adams proposes to himself at the commencement of this treatise are, first, a suitable arrangement of the parts of his subject, with illustrations from facts, and practical inferences ; next an attempt to ascertain what provisions are made by nature to correct any apparent deviations in the human race ; and lastly an inquiry how far these provisions may be imitated or improved by art.

His proposed arrangement consists in establishing the difference between *family* and *hereditary* peculiarities of constitution ; and secondly in marking the period of life and other circumstances under, which such peculiarities, whether family or hereditary, show themselves.

The distinction between a family and an hereditary peculiarity, according to Dr. A. consists in this, that the first is confined to a single generation, to brothers and sisters the children of the same parents ; while the second is traced from generation to generation.

In regard to the time of their appearance, he divides diseases into congenital or connate, and those which arise afterwards. The first of these only he considers as hereditary or family *diseases*, the latter as hereditary or family *susceptibilities* of diseases. This susceptibility is of two kinds or degrees. 1. A *disposition* to disease, where the disease though not existing at birth is afterwards induced without any distinct external causes ; and 2. a *predisposition* where the disease requires the agency of some external cause to produce it.

Dr. A's. observations in regard to these diseases and susceptibilities, lead him to some important general conclusions ; such as,

That *connate* diseases or privations are for the most part family, not hereditary diseases.

That *dispositions* to certain diseases are more commonly family than hereditary ; that the diseases arising from them usually

show themselves at certain ages ; if early in life, we have little chance of preventing or curing them, but such children as escape that age are as safe as the descendants from other families.

That predispositions may be either family or hereditary, and that of these, hereditary predispositions to the most prevalent diseases are brought into action either by climate, or by such external causes as may often be prevented.

In considering the provisions which nature has made for correcting hereditary defects and diseases, Dr. A. observes, " We must at once see that if no provision had been made in the construction of animals to prevent it, hereditary diseases would by degrees have become universal ; whereas there is every reason to believe that they lessen in the human race, as society improves, and we shall see that so important an end is not left to the uncertainty of human institutions. Throughout all the animated productions with which we are acquainted, there is found a disposition in every variety to return to the original form ; and in those animals which are reared for our use, much industry is required to prevent it. In a state of nature the race of all gregarious animals is probably progressively improving, as far as is consistent with their capacity for improvement. The strongest male becomes the *vir gregis* and consequently the father of most of the offspring. In the ruder state of human society, or rather in its earliest formation, something of the same kind may prevail ; but in a more advanced stage, sufficient provision is made by the preference which health and intellect will for the most part produce in either sex.

" Another provision arises out of climate, which we have seen is in some cases the only means of exciting a diseased susceptibility into action. Those constitutions which are peculiarly susceptible of such diseases as are excited by climate, fall an early sacrifice ; hence the propagation from such sources gradually lessens, and the disease would cease altogether, were it not that parents free from such susceptibility occasionally produce an offspring in whom the susceptibility originates.

" Thus we see the natives of warm climates when removed to a colder, are peculiarly liable to scrophula ; and it cannot be necessary to add, how much the natives of colder climates suffer under the tropics, from causes which produce little or no effects

on the offspring of the old inhabitants. By these means a race is gradually reared with constitutions best calculated for the climate ; a law which, I suspect, has been too much overlooked in our inquiries after the causes of the more marked varieties in the human species.

“ The provisions of nature however for restoring the original form, in animals reared for our use, may be very much interrupted by accidental circumstances, and almost superseded by the industry of men. Sir John Sebright informs us that if a flock of sheep in which there is any defect, are permitted to breed *in and in*, the defect will gradually increase among them ; and Colonel Humphreys, by selecting for breeding a marked variety, has succeeded in procuring a flock all of them with deformed bones. If the same causes operate in man, may we not impute to them many endemic peculiarities found in certain sequestered districts, which have hitherto been imputed to the water and other localities ? And may we not trace a provision against such a deterioration of the race, in that revealed law by which any sexual intercourse between near relations is forbidden on pain of death ? This prohibition as far as we can judge, proves sufficient to prevent the two great influence of such an hereditary cause, since the number of maniacs does not increase in proportion to our increased population, and the great exciting causes of madness, viz. increased wealth and other sources of ambition. Nor is this the only provision we can trace. The worst stages of madness are attended with a total indifference to the sex, not to mention the very general inclination to suicide, which the utmost vigilance cannot always prevent. Seeing then how little is left in so important a concern to the operation of human institutions, have we not reason to be satisfied with the provisions of nature and of the divine commands ?”

INTELLIGENCE.

Museum of Natural History.

THE museum of natural history in Boston, which belongs to the Linnæan society of New-England, may be viewed as one of the most promising scientific collections in the country. Its commencement is to be dated only from the 1st. of January 1815, yet in the short period which has since elapsed, the collection has grown, so as to fill two extensive apartments, and has recently been removed for want of room to a spacious hall over the new south market house. The museum consists solely of specimens in the different branches of natural history, in each of which it now contains a very handsome variety of species. Among the quadrupeds may be mentioned the Lion, Tiger, Leopard, Catamount, Wolf, Bear, Stag, Sea-Elephant, and a great number of smaller species, principally native. The birds amount to nearly three hundred in number, and consist of elegant species in every order, and of every size, from the Albatross and the large Sea-Eagle of North America, to the minutest Humming birds of Cayenne. A majority of the birds are natives of this country, but there are many beautiful species from tropical countries in the genera oriolus, corvus, ramphastos, psittacus, paradisea, galbula, bucco, certhia, alcedo, parra, ampelis, pipra, &c. The fishes are prepared in uniform half specimens fixed upon a white ground, and afford a fine display, being sufficiently numerous to nearly cover one end of the hall. The insects and shells amounting to some thousands in number, include many rare and elegant species, both native and foreign, and among them may be mentioned, a fine collection of insects from China, and of shells from the Isle of France and Calcutta. The mineralogical specimens already fill four large cabinets, and the herbarium of native plants, yet in its infancy, is perhaps inferior to none for the neatness, and perfection of its specimens.

The whole collection, with the exception of the fishes and a few other specimens, have been inclosed at a great expence, in mahogany cases with glass fronts. They have been arranged according to their orders and genera, as far as the progressive nature of the collection would admit; and most of the specimens are labelled with their scientific and English names. The labour of investigation and arrangement has been performed by the different members of the society, to whom the several departments have been allotted. The specimens have been prepared by members of the society, and by an artist employed for the purpose; or acquired by fortunate purchases and donations. The causes which have hitherto promoted this collection, will continue to aid its growth; and from the number of native specimens, which yet remain to be acquired, as well as from the number of orders actually sent to foreign ports; it is not unreasonable to expect that the collection will be fully doubled in another year.

The object of the Linnæan Society is the cultivation of natural history, with a particular view to the investigation of the native productions of the American continent. They have believed that a collection like the present will afford a convenient and necessary aid to students, and may eventually be found useful in throwing light on the natural history of the country. Their collection is placed on the most liberal footing, being always accessible to persons properly introduced, and being opened once a week for the free reception of citizens and strangers.

It is hoped that this institution, devoted solely to purposes of science, and of public utility, will continue to receive, as it has hitherto done, the assistance and contributions of friends to the progress of natural history in this country. It is needless to observe that any specimens in a living or recent state, or in any state of good preservation, will be highly acceptable to the society. Many native animals and other specimens are yet wanting in the collection, and duplicates of the specimens already possessed are always desirable for the purpose of exchanges with other collections. Persons disposed to aid the society may be furnished from any member, with printed directions for preparing objects in every class of natural history. Any specimens intended for the Museum may be directed to the Boston Athenæum in Tremont-Street, to William S. Shaw, Esq. District

Clerk; to H. A. S. Dearborn, Esq. Collector of the port of Boston, to Dr. J. Bigelow, Corresponding Secretary of the society, or to any resident member.

Note to account of Harvard University.—Medical Institution.

THE lecturer on Midwifery has made arrangements in Florence, for procuring wax preparations which shall illustrate his lectures on Pregnancy and Parturition.—One of the best artists in the Florence School is now making a preparation to answer the above objects ; and that it may be as perfect as possible. it is to be made under the immediate inspection of one of the officers, —Sig. Professor Casselli. The preparation above alluded to, will be completed in May 1816.

Eye Stones.

THERE are few prejudices of the vulgar more prevalent in the United States, than the belief of the efficacy of small calcareous substances known by the name of eye stones, to extract foreign particles from the eyes. The origin of these substances was not unknown to naturalists, and the cause of their motions in vinegar was obvious to every attentive observer. The following extract from the personal narrative of Baron Humboldt will confirm the explanation which scientific men must doubtless have given to the movements and efficacy of these mysterious agents.

“Of all the productions on the costs of Araya, that which the people consider as the most extraordinary, we may even say the most marvellous, is the stone of the eyes, *piedra de los ojos*. This calcareous substance is the subject of every conversation : according to the natural philosophy of the natives, it is both a stone and an animal. It is found in the sand, where it is motionless ; but placed singly on a polished surface, for instance on a pewter or earthen plate, it moves when excited by lemon juice. Placed in the eye, the pretended animal turns on itself, and expels every other foreign substance, that has been acci-

dentally introduced. At the new salt works, and at the village of Maniquarez, the stones of the eyes were offered us by hundreds, and the natives were earnest to show us the experiment of the lemon juice. They wished to put sand into our eyes, in order that we might ourselves try the efficacy of the remedy. It was easy to see, that these stones are thin and porous opercula, which have formed part of small univalve shells. Their diameter varies from one to four lines. One of their two surfaces is plain, and the other convex. These calcareous opercula effervesce with lemon juice, and put themselves in motion in proportion as the carbonic acid is disengaged. By the effect of a similar reaction, loaves placed in an oven move sometimes in a horizontal plane; a phenomenon that has given occasion in Europe, to the popular prejudice of enchanted ovens. The *pedras de los ojos*, introduced into the eye act like small pearls, and different round grains employed by the American savages to increase the flowing of tears. These explanations were little to the taste of the inhabitants of Araya. Nature has the appearance of greatness to man in proportion as she is veiled in mystery, and the philosophy of the people rejects every thing that bears a character of simplicity."

Flora of South Carolina and Georgia.

PROPOSALS have been issued in Charleston, (S. C.) for publishing by subscription, a work on the Botany of South Carolina and Georgia, by Stephen Elliott, Esq. of Charleston. This work will be published in numbers which will not exceed ten. The first number will be published in May or June next, and the subsequent numbers at intervals of two months each. The price to subscribers will be a dollar each number. The work will include all such plants as the author has seen himself, and also those which have been described by botanists on whose authority he can rely. It will contain occasionally, observations on the medical and economical uses of the plants described, their popular names, where they can be ascertained, and some notices of the insects which they support, and by which they are destroyed.

The friends of natural history will anticipate with much pleasure the appearance of this work, which is to embrace the productions of a tract of country, exuberant in its vegetation, and highly interesting to botanists. The name of Mr. Elliott is not unknown to the scientific world, and high expectations may be placed on his able execution of the undertaking he has announced. His fondness and zeal for the science may be estimated from the following passage, which we extract from an address delivered before the Literary and Philosophical Society of South Carolina, of which he is president.

“The study of natural history,” says he, “has been for many years the occupation of my leisure moments; it is a merited tribute to say that it has lightened for me many a heavy, and smoothed many a rugged hour; that beguiled by its charms, I have found no road rough or difficult, no journey tedious, no country desolate or barren. In solitude never solitary, in a desert never without employment; I have found it a relief from the languor of idleness, the pressure of business, and even the unavoidable calamities of life.”

A subscription paper for this work may be found at the Boston Athenæum.

Translation of Boyer's Surgery.

DR. STEVENS, professor of Surgery in the Medical Institution of New-York, has undertaken the task of translating the late work of Baron Boyer. This valuable publication is a treatise on surgical diseases, without the operations; for although the title might convey the idea of a work on operative surgery, the author disclaims a pretension to this, and refers to others, for instruction in the use of the knife. It was originally published in four volumes; but the intention of the translator is to compress it into two. No other modern work, in our possession, enters so exactly into the details of surgical treatment: and although the author's minuteness may sometimes appear fatiguing, his patient description of the phenomena and treatment of this class of diseases assists us in a part of practice where other authors forsake us.—Dr. Stevens has published one volume of his translation

containing two of Boyer's. So far as we have compared the two it is an exact and spirited representation of the original work.

DR. WILSON of New-Hampshire has lately published "An Inquiry into the Nature and Treatment of the prevailing Epidemic called Spotted Fever." This volume contains about 200 pages and is divided into three parts. The first part contains a general view of the climate and diseases of the United States. The second is an inquiry into the nature of this epidemic. The third comprises the treatment.

Gum Kino.

IN the appendix to the life and last journal of Mungo Park, lately published, it appears that this drug, whose origin has hitherto been unknown, is found, from a specimen sent by him to Europe, to be obtained from a species of *Pterocarpus*, not yet described by any botanical writer.

Hortus Bengalensis.

A CATALOGUE of the Botanic garden near Calcutta, bearing the above title, has reached us. It accompanied a present of plants and seeds, sent from that institution, to the Linnæan Society in this place. This catalogue contains about 3,500 species, a majority of which are natives of India. Among these, the great number of new species forms a striking feature in the catalogue. This collection has been chiefly made by the zeal and indefatigable activity of Dr. Roxburgh, a gentleman, whose name is well known to the public.—At the end of the catalogue is added a list of 453 plants not contained in the catalogue, but described by Dr. Roxburgh in his manuscript *Flora Indica*. From the publication of this last work describing the native vegetables of so rich a country, the botanical world can hardly fail to receive a very important acquisition to their present stock of knowledge.

Case of intermittent Fever, each paroxysm of which was accompanied by uterine hæmorrhage.—By M. ROUTIER, of Amiens.

[Translated from the Journal de Médecine, April 1815, for the New-England Journal of Medicine, &c.]

A WOMAN, aged 37, the mother of six children, miscarried between the third and fourth month of gestation, February 19th, 1806. Her health was quite re-established, when on the 14th April she experienced a shivering fit, with trembling, followed by heat and sweat. At the same time she suffered uterine hæmorrhage, which continued until the moment of the appearance of the heat and sweat. M. Routier was called towards the end of the fit. He found the cervix uteri in its natural situation. The bed of the patient was *guarded*; an infusion of chamomile prescribed, and compresses dipped in vinegar were applied over the abdomen.

15th. No alteration. The patient rose, and went about her ordinary affairs.

16th. In the morning, another paroxysm of fever, accompanied by hæmorrhage, as at first. The same medicine continued.

17th. No fever. The patient took 24 grains Ipecac. and 1 of Tart. Antimonii.

18th. Shivering with hæmorrhage, so great as to produce syncope. M. Routier plugged the vagina, and added to each cup of the infusion of chamomile, some drops of Tinct. aloes et Myrrhæ. The symptoms went off, as in the former paroxysms by heat and sweat.

19th. No fever. The patient is only weak, and takes a little nourishment. The plug was removed from the vagina, and a new one introduced.

20th. A fourth paroxysm, with hæmorrhage and syncope. The same termination as in the others. M. Routier now perceived the necessity of putting a stop to the fever; and as the patient refused to take the cinchona in powder, he gave her a drachm of the extract of this bark in a convenient draught.

22d. Another paroxysm. The same occurrences as before.

23d. A perfect intermission. The patient takes the cinchona in substance.

24th. A slight paroxysm of fever, without loss of blood. For some days the extract of cinchona was given, and the sixth accession did not occur. From this time the patient convalesced.

Case of Tetanus cured by Injections of Tobacco Smoke. By
THOMAS DUNCAN, Surgeon, Grenada.

THE following case of tetanus is communicated, not with the view of exalting the merits of a plan, which, in this solitary instance, has succeeded, or of raising my reputation on the result, but of drawing the attention of my medical brethren to the management of a most formidable and fatal disease, in which the same method of treatment, in two successive occurrences, cannot be depended upon, and of inducing a trial of remedies not in general use, although I think, in some degree, warranted by the appearance of the disease. The tonic and stimulating plan of bark, wine, mercury, and cold-bath, has had the suffrages of Drs. Cochrane, Wright, Rush, Currie, Hosack, and others, and, no doubt, deservedly; but I think the latter goes too far when he says, that the failure of these must be attributed to the complicated and inert manner of giving them, and not to the principle of their action; because the proximate cause of the disease is an exhausted state of the sensorial power, from violent irritation, applied to the nervous system.—(Vide Duncan's Annals for 1799.) Although I cannot enter upon the nature of a disease so little understood, experience authorizes me to say, that neither antispasmodics nor tonics, sedatives nor stimulants, either by themselves or variously combined, can be relied upon, even under the most faithful administration, for cures and failures have taken place under each. It is no wonder that Boerhaave says, "Ex his vanitas apparet omnium specificorum et methodorum quæ inanis jactantia contra hoc malum laudat;" and that, meeting with continual disappointment, we fly to every thing that gives but a ray of hope, even out of the routine of common practice.

Sylvest, the subject of the present communication, is a negro attached to Palmiste estate, the property of Bogle French, Esq. of London, a stout and hale young man, of 20 or 21 years. On hoisting up a mill-roller, the tackle gave way, and the edge of

the iron cylinder fell on his left foot, which produced excruciating pain. When called, I found considerable laceration and contusion of the metatarsus, without, however, exposing the bones, or, as far as I could discover, fracturing any of them. As is usual in such accidents, there was little hemorrhage. The wound was dressed with *spt. terebinth.* which Dr. Rush, in the *Medical Inquiries*, gives us reason to suppose is a perfect prophylactic against tetanus; and at night an anodyne draught was ordered. During the first three or four days, warm poultices and fomentations were employed to produce suppuration, and the draughts continued. A slight sphacelus followed, which being removed on the 9th day, left the sore clean, and discharging good pus. Until the 15th, matters went on favourably under the opiate at night and emollient dressings; the pus was healthy, and the granulations advancing; but on that day he complained of stiffness in the muscles of the neck, and difficult deglutition, which being taken for cynanche tonsillaris, then very prevalent, owing to the spring rains, was unnoticed. At my visit the following morning, viz. the 18th May 1812, the circumstance was accidentally told me, which, from repeated experience of this simple and insidious commencement, called my immediate attention. On desiring him to show his tongue,—a question I prefer to any other, as it conceals suspicion,—I found he could not separate his teeth sufficiently to put it out. I foresaw what was approaching, and having given him *tinct. opii gutt. lx.* in a glass of mulled wine, and directed the neck and fauces to be well rubbed with the former, I sent for my brother, with whom I had laid down the treatment of the next case of this kind which should occur, having lost the two preceding by the tonic and stimulating plan; but before he came, I was called to some distance off, and did not see Sylvest again until next morning. In the mean time, my brother ordered the warm bath, *gutt. lx. tinct. opii* every third hour, in a glass of mulled wine, unless sleep should be produced, and a warm poultice sprinkled with *pulv. opii* to the sore.

Next day, the 19th, we found all the symptoms of a confirmed tetanus present—the jaws locked to within one-eighth of an inch—violent convulsions and contorsions backwards of the whole body occurring every few minutes, and increased by attempting to drink, or when spoken to—that pathognomonic sign, the pair

under the sternum, excessive, and, as he expressed, unbearable ; —slept none, although he had taken the laudanum three times during the night, and once this morning. Pulse 88, and firm ; skin cold, and covered with perspiration ; belly costive ; sore looking well.

Adeat baln. tepid. pro hor. dimid. bis indie ; postea bene fric. ol. olivar. calid. præcipue spina dorsi, et exhib. enema fum. nicotian. teties.

Cap. tinct. opii dr. i. in vin. Mad. oz. ii. omne nocte.

We saw him in the afternoon, about five hours after, using the bath, &c. He was in a profuse perspiration, being covered up with blankets. The enema produced fainting, which lasted some time. On recovering his senses, he expressed himself well, and unconscious of being sick ; had a large hard and fetid stool soon after. No abatement, however, of the symptoms, although the spasms did not recur for half an hour after the syncope. Wishes for heat. Let him be wrapped in flannel, well covered with blankets, and have a charcoal fire burning close to him night and day.

20th.—The enema yesterday afternoon produced only nausea and sickness. Sweated much, and continues to do so. The jaw is so firmly fixed, that the thinnest fluids with the utmost difficulty pass, and he is averse to take any, from the severe spasms which are consequent upon the action of swallowing. Opisthotonos unabated ; the fits return every few minutes with increased anguish ; feels the charcoal fire pleasant, and objects to any detraction from its heat, which is so great as to be uncomfortable to a bystander. Sore looking kindly, and yielding a moderate quantity of good pus ; but the foot is much swelled. No sleep from the draught, nor has he closed his eyes for the last 48 hours. Pulse 94 ; skin warm ; no stool from the injection yesterday evening. Let thin panada, with Madeira wine and strong sangrée, be sucked down frequently.

Rep. baln. et frict. ol. calid ut heri præscript. et inj. fum. nicotian. donec superveniat syncope ; necnon rep. tinct. opii hora somni.

21st.—Mouth clenched most firmly, and the spasms equally frequent, though not so severe ; thinks the pain at the scrobiculus cordis less ; has taken a good deal of sangrée, but can receive nothing more substantial. Sweats profusely. Each ene-

ma, after a long exhibition, produced slight syncope : felt them comfortable in his bowels, and had an operation from them. Attributes the sickness and fainting to the fumes reaching his head. Slept about twenty minutes after taking the draught, but the spasms returned with increased violence, and he passed a very bad night. Sore healing under emollient dressings; pulse 90; thinks the heat does him much good.

Cont. omnia ut heri præscript.

22d.—The enema yesterday produced complete syncope, and to-day he feels much easier. Can open his mouth a little in the absence of spasms, which, although they return as often as before, are by no means so violent. The pain at the scrobiculus cordis is diminished, and he had two operations after the injections. The sensation of fainting is so dreadful, that he says he would rather bear the convulsions, painful as they are. Feels his neck and jaws very stiff and sore; sweats most profusely, more especially after fainting. Has taken a little panada, but convulsions are sure to follow deglutition. Ulcer mending; pulse 90 and full; skin warm; slept a little.

(Considering this the 4th day of the disease, I augur favourably of its termination, for in almost all other cases I have found that one critical. The great Hippocrates in his fifth Aphorism, says, what meets my perfect concurrence, “*Quos tetani vis magna exercet intra quartum diem intereunt, quodsi hos effugerunt tetano levantur et sani evadunt.*”)

Pergat ut heri.

23d.—An evident alteration for the better, and an abatement of all the symptoms; can open his mouth half an inch, and the spasms are neither so frequent nor severe. The draught procured some sleep; slight syncope from the injections. Sweats very profusely, to which he attributes his meliorated state. Objects so strongly to the bath that it was omitted yesterday. Sore healing, and swelling gone. Pulse 87; belly open.

Contr. alia.

24th.—Mending; has had only six attacks since last report, and can open his mouth somewhat more. The enemata are not so long exhibited as formerly, and nausea and sickness only are produced. Belly open; slept well; sweating continues; fire and blankets still used.

Habt. frict. et enem. semel indies.

Capt. cort. Peruv. dr. i. ter indies et rep. haust. anod.

27th.—Continues to improve in every respect ; opens his mouth full an inch, and has from two to four spasms only per day, and these not severe. Deadly sick from the enema, which he begs may be left off. Continues the fire and warm covering, and is in continual perspiration. Pulse 90 ; tongue clean ; belly costive.

Omitt. inject. fum. nicotian.

Cont. frict. ol. calid. Cont. etiam cort. Per. sed admisc. quotidie p. jalap. dr. ss. prima in dosi.

31st.—Doing well. Opens his mouth freely, and is rarely seized with spasms. Continues the friction, sweating process, and bark ; takes a good deal of nourishment, and sleeps well at night. Pulse 76 ; belly open ; tongue clean ; sore closing.

4th June.—Gaining ground daily. The heat of the charcoal fire has been gradually diminished, and is now entirely withdrawn. He is directed, however, to continue the flannel, and not to move from his bed.

Cont. cort. Peruv. et tinct. opii u. a.

11th.—Improving. No more convulsions, but great stiffness and stricture of the jaws. Is gaining strength. Got out of bed to-day for the first time, well wrapped in flannel, which he must use for some time. Functions natural, and sore healed.

Cont. cort. Peruv. sed dimin. dos. tinct. opii ad dr. ss.

By the end of June, this patient was perfectly recovered from the disease, the only remains of which were stiffness and rigidity. He wore the flannel for a long time after, and is at this moment in good health, except an occasional pain and swelling of the feet in wet weather.

At this distance from the emporium of medicine and seat of improvement, it might justly be reckoned presumption in me to enter upon the pathology of a disease which has puzzled both ancients and moderns, and towards a systematic treatment of which they have done so little ; but it may be expected that I should account for my practice in the case of Sylvest, unsupported as it is in some respects by great living authority, and in one entirely new.

As I have already observed, that the two preceding instances of tetanus died under a strict observance of the tonic and stimulating plan, where the cold-bath, opium, wine, and mercury, were faithfully administered, I was determined to depart from

the usual routine of practice, and try a relaxant one, without, however, the aid of venesection, which, if carried to any extent, might weaken the system beyond recovery. For this purpose, I had recourse to the hot-bath, and directed warm olive-oil to be well rubbed over the whole body, more especially on the spine. The use of oil is as old as Hippocrates, who says, in treating of this disease, "Totum corpus oleo immergatur tepenti maximaque cervix hapsis foveatur." The Spanish practitioners, in the new hemisphere, use it. Dr. Warren thought well of it. Dr. Cochrane of Nevis employed, with good effects, embrocations of the ol. terebinth.; and Dr. Moseley mentions it among the remedies used by the negroes in Jamaica. To keep up the free perspiration, which was induced by the bath and frictions, the patient was covered with blankets, and wore a flannel shirt. At his own request, a fire was added, and sweating carried to a considerable extent. I may here notice, that, from the difficulty of swallowing, and his unwillingness to take any thing at the beginning of the complaint, antimonials, and other sudorifics, were inadmissible. But, in a disease so formidable, and so generally fatal as this, we dare not trust to a single remedy; neither did I intend that sweating alone should be relied on in the instance of Sylvest.

I had remarked, in a recent case of hernia, syncope caused by the administration of tobacco-smoke injections, and it occurred to me, that, if I could produce the same in tetanus, the bowels, which are always constricted, would not only be relieved, but, by its action on the sensorium, the spasms might be overcome. The famed Dr. Cullen says, "It is highly probable, that, in this disease, the intestines are affected with the spasms that prevail so much in other parts of the system, and, therefore, that costiveness occurs here as a symptom of the disease," &c.; and, again, "That a relaxation of the intestinal canal will contribute to a relaxation of the spasms elsewhere." Dr. Hamilton's recent publication on the effect of purgatives induces a belief of the same. But I am not aware that tobacco-smoke, thrown into the *intestinal canal*, had been practised in the treatment of tetanus previous to this case, and on it I placed my principal reliance. It is true there is mention made by Dr. Willis (de motu musculare) of a lady, affected with convulsions, being relieved by the fumes of tobacco blown up her nostrils;

and Mr. Harris, surgeon of the *Magnificent*, after Rodney's victory in April 1782, used it in the same way with a tetanic patient that recovered. But, whether the cure of Sylvest is to be attributed to the warm-bath, and oil frictions,—to the artificial heat, and profuse perspiration,—or to the effects of the tobacco fumes ;—or whether it might have been owing to a particular state of the patient's constitution,—or an unusually pliable form of the disease, which, by the bye, was not to be expected from the cause,—or from a combination of some or all of these circumstances, I cannot pretend to determine.

I have detailed the case as it occurred. I have given my reasons for walking out of the beaten path ; and, from the success of this, I shall feel myself authorized in repeating the experiment.

Before concluding this subject, I may observe, that a boy, about eight years of age, the orphan of a clergyman of this island, and at present in Edinburgh for his education, Daniel Mactair, recovered from the same disease, brought on by cold, under the use of the warm-bath and unctuous frictions, with a very small proportion of laudanum internally. And, a few weeks ago, I knew an infant, of seven days, recover from the trismus infantum, by the warm bath only.

[*Edinburgh Med. and Surg. Journal.*]

On the Oil of Turpentine in Epilepsy. By DAVID LITHGOW, M. D. Coleraine, Ireland.

A NEW field has lately been opened for discussion, by the introduction of the oil of turpentine in epilepsy, by Dr. Percival, a physician of great eminence, who, from his situation in the hospital for incurables, has the best opportunity of making improvements in his profession. The action of this, like that of many other medicines, is unknown. Dr. Percival draws a conclusion from his cases in the following words : “ The only specific action of that drug was apparently emmenagogue ; a hint not undeserving of application in other cases.” From the three cases related by himself, and one by Dr. Latham, in the 36th Number of this Journal, and also from the following case, which occurred to myself, I was led to form the same opinion.

SARAH GRAY, ætatis 23, of a robust habit of body, was subject to attacks of epilepsy for six months. The paroxysms occurred

at intervals of a month, during the beginning of her complaint, but latterly she has been much oftener seized, once, and occasionally twice in a week. She is affected during the night, and, in a state of insensibility, is violently convulsed for upwards of ten minutes, the fits leaving her in a tolerably good state of health. Bowels regular; catamenia regular, but in small quantity; knows no cause for her complaints. I ordered her an aloetic purge, after which she began to use the oil of turpentine. The second day she had a slight attack; the menstrual flux was increased in a quantity, and she never had a return of her complaint.

From this, and the four cases above alluded to, (all the subjects being females) I was led to agree with Dr. Percival in opinion, and to think, that how valuable soever the discovery might be to the female, the male sex were to lose all the benefit arising from it. But, from a further employment of it, I changed my opinion, and concluded, that although its power was great as an emmenagogue, it was an unknown effect which produced the ascendancy over the epileptic attack.

JAMES BOOTHE, ætatis 28, of a short stature, and plethoric habit, has been subject, for these ten years, to attacks of epilepsy of a severe kind. Dates the origin of his complaints from a severe fright, since which time he has had regular attacks every month, and sometimes frequent fits for the course of eight days. For a short period after the cessation of these fits he is in a state of mental derangement; during the paroxysms he is quite insensible. Bowels costive, and occasional headaches. I had first recourse to the use of purgatives; afterwards a number of the more powerful anti-epileptic remedies were tried in vain; when I began (February 15th) to use the oil of turpentine, in the quantity of four drachms, diffused, by syrup, in a pint of peppermint-water, a wine glassful was given four times a-day. A week after he had a return of the paroxysm, but in a slighter degree; at the usual period of return he had a few attacks, so slight that they were scarcely perceptible; since which time he has remained in perfect health. In the course of his recovery he made use of upwards of two pounds of turpentine, without any sensible effect. He sometimes complained of a sense of prickling throughout his whole body, with occasional vertigo.

[*Edinburgh Journal.*]

Prussic Acid.

ONE of the German Journals some time ago, announced the death of the celebrated *Scarenger* by the application of Prussic Acid to his naked arm. Before this, the Batavian Society, after a repetition of several of Mr. Brodie's experiments, had concluded with very different results. It now appears, that that valuable character died apoplectic.

[*London Med. and Phys. Journal*, Jan. 1816.]

Royal Society.

THE following are elected officers of the Royal Society of Great Britain for the present year. Rt Hon. Sir Joseph Banks, Bart. *President*; Samuel Lysons, Esq. *Treasurer*; William Hyde Wollaston, M. D. and Taylor Combe, Esq. *Secretaries*.

Medico-Chirurgical Transactions.

The London Medical and Physical Journal for February 1816, announces the publication of the *Sixth* volume of the Medico-Chirurgical Transactions; also of the *Fifth* volume of the Medical Transactions, by the College of Physicians, London.

OBITUARY.

DIED in London after a short illness JOHN COAKLEY LETTSOM, M. D. aged 71. This learned physician has been long known, as the promoter of many charitable and scientific institutions, and the author of many works on medicine and natural history.

Also Dr. THOMAS DENMAN, aged 83, celebrated for his obstetrical writings.

TO CORRESPONDENTS.

THE want of room makes it necessary to postpone to the next number the communication of a valued correspondent, on the subject of *Ipecacuanha*; also, cases of *Morbid Anatomy*, from a respectable practitioner of this vicinity.

The communication of our New-York correspondent on *Dropsy of the Ovarium* was mislaid at the time this number was printed; but shall be inserted in the next.

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No. III.

OF SOME PECULIARITIES IN THE MANAGEMENT
OF IPECACUANHA.

[For the New England Journal of Medicine, &c.]

I. IPECACUANHA, in a very *small* dose, may be employed, during a long course of years, as a daily stimulant to the digestive system, to secure a *daily evacuation by stool*.

For the knowledge of this, we appear indebted to the late celebrated M. Daubenton. An account of the practice will be given in the following *Summary* of his pamphlet, entitled, ‘*Observations on Indigestion* ; in which is satisfactorily shewn the efficacy of *Ipecacuanha* in relieving this, as well as its connected train of complaints, in the decline of Life :’—a work translated from the French, by A. P. Buchan, M. D. (the third edition of the translation, with additions, having appeared in London in 1809.)* Though the author’s speculations may not all be approved, yet the merit of his medicine does not depend on the theory given for its action.

* This abstract having been composed from minutes, and the pamphlet not having since been consulted, slight errors may accidentally have crept into it.

The retrograde age or the *green* old age of man (his *senium crudum*)* begins, according to our author, at 40 or 45; but it is only at 60 or 65, that old age becomes decidedly established. Even at the former period, when the powers of life experience their first decline, the stomach demands attention; for then *indigestion* either occurs occasionally, or becomes more fixed in those who have already experienced it.

This disease, we are informed, may be more or less marked; but there is *one species of it* which though it is oftener seen than any other, seldom obtains its proper name; and yet, by commencing under a mild form, may lead in the end to serious complaints, and especially to languor.

In a slight case of this form of the disease, the food lies heavily on the stomach after a meal; and a torpor occurs, impeding the functions of the body and weakening those of the mind. If the fit soon terminates, it is because a discharge of air takes place upwards; an act which is sometimes painful. Our author calls this air (from the want of a precise knowledge of its properties) *the air of indigestion*.

If this air remains confined, the fit grows more serious, continuing perhaps till bed-time; when the air increases, and its escape becomes more difficult; so that the stomach is deranged, and other organs suffer by nervous sympathy. The head is heavy and giddy; the breast is oppressed, and has a sense of heat in it; the heart palpitates; the knees tremble; the legs are cold; sweat breaks out over the whole body; and the posture in bed requires to be varied, even to rising up in bed: but at length, if the air escapes, the fit comes to its close.

Should *sleep* occur during an attack of the more serious kind of this species of the disease, it is troubled in various shapes; and upon awaking, heat is felt in the chest and stomach; the appetite is impaired; and there is languor, melancholy, and a tendency both to fear and to irritability. But when after rising from the bed, the air becomes expelled by motion, or is changed in its qualities; the fit ceases; and the mind regains its usual state of ease.

* Virgil in his *Æneid* (6, 304,) says of Charon,

— *cruda deo viridisque senectus.*

M. Daubenton having himself suffered from this malady, inquired into its *causes* and its *remedies*; and the present publication is said only to have been an extract from a larger work, intended for the notice of the Royal Society of Medicine at Paris, of which he was a member.

With a view also of preventing indigestion in the *decline* of life, our author searched after the *food* best suited to this age; which led him to the following conclusions.

An animal and a vegetable diet produce similar flesh and blood in many different animals. Some animals indeed are equally well supported upon either kind of diet; and perhaps with certain modifications, there are few carnivorous animals which cannot be made to subsist on vegetables; and so for the reverse. Vegetable food however, according to our author, may generally be said to be most natural to animals, since in fact it supports the majority of their species; and particularly the largest, as the elephant and rhinoceros.* Hence the author is inclined to the supposition, that animal food is *not* the most suitable for *man*; particularly as labourers in the country perform their work chiefly by the aid of vegetable food; and what food (he says) can be more proper than that which supports both strength and health?

Animal food, according to our author, as being closely related to the substances of which our bodies are composed, appears at first to be peculiarly invigorating; since even when taken too abundantly, it is followed by an increase of plumpness and of colour. But this excess may lead to humours, decline of vigor,

* It is said, that at some of the salt-licks (so called) in those parts of the United States, where the remains of gigantic animals are found, observers have discovered numerous remains of other animals of some size lying near them, exhibiting fractured bones; as if resulting from the act of vast carnivorous animals: a conjecture, confirmed by the magnitude of certain claws found within the United States, to whose owner Mr. Jefferson has given the name of *Mega-lonyx*. But on the other hand, the late Bishop Madison is understood to have furnished evidence to prove, that one species of these gigantic animals, sometimes fed upon vegetables; since the stomach of one is said to have been lately discovered in tolerable preservation, filled solely with vegetable articles.

and obstructions. Nor is it any certain remedy to this, to lessen the dose of animal food ; since without the stomach is duly filled, the sensation of hunger will arise.

To confirm this reasoning as to the food best suited to our natures, our author asserts from the dissection of many different animals, that the internal fabric of man has more resemblance to animals living upon vegetables, than to such as are carnivorous.* Thus apes, he says, are of all others the nearest allied to man in the conformation of their bodies ; as in the mouth, teeth, throat, œsophagus, stomach, and intestinal canal ; and (as he adds) in their mode of digestion also. Yet he reminds us, that apes in a state of nature live solely upon vegetables ; necessity, curiosity, or peculiar circumstances, alone inducing a change in their habits.

But though the digestion of vegetable food in the judgment of our author, may be more easily accomplished in the decline of life, than the digestion of animal food, he forbids our hope of any benefit from resorting to it, unless we remove the *cause* of indigestion. This he conceives to be, a thickened state of the secretions of the stomach ; which, to be easily mixed with our food, ought to be *fluid*.

To secure this point, he maintains that it is proper to employ means which shall successively communicate energy to the different parts of the stomach ; without contracting its coats as in purging, and without convulsing them as in vomiting. This, he affirms, may be accomplished in the decline of life, *by very small doses of ipecacuanha*, taken daily, to an amount which shall produce neither pain nor nausea ; but which shall merely cause a sensation in the stomach, like that from the motion of a worm. This amount of action, he says, is sufficient to expel *all thick rofy matter* from the inside of the stomach.

The daily dose of this medicine, as we learn, may be from one quarter of a grain to two grains, as experience shall decide : and the author (who lived to the age of eighty-four years,) was

* Our author, as the associate of Count Buffon in his great work on animals, and as keeper of the cabinet of natural history for the king of France, and professor of natural history, was most favorably circumstanced for making these researches in comparative anatomy.

one, who in his own person reaped the benefits of the remedy which he thus prescribed to others.

To the foregoing "Observations" on these subjects, our author added an "Appendix," of which the following is the essence.

1. Should there be doubts as to a given patient, whether his case be such as is here referred to, a medical practitioner is to be called in. 2. The ipecacuanha here employed was of the brown sort; and such as is in common use.* 3. The proposed dose is to be taken in the morning fasting. 4. It may be given in a spoonful of water or of wine, or in the pulp of a roasted apple, or in jelly, or lastly in lozenges, of which each may contain a quarter of a grain of ipecacuanha combined with sugar.† 5. The dose may occasionally be increased. 6. The robust are warned not to neglect small degrees of the indisposition in question, lest the evil should gradually become too obstinate to be removed; (for those of a weaker frame more early take alarm.) 7. In cases of debility of the stomach, the medicine, we are told, may be used at other periods, *previous* to the decline of life.

The force of this last remark extends the use of our author's medicine to earlier periods of life than those to which he at first seemed to confine it; which was the *age de retour*, or first falling off from our age of bodily perfection. The author therefore is now to be understood as asserting, that ipecacuanha exhibited in the manner prescribed, may be used at any age, when the secretions from the glands concerned in digestion, diminish and become thick and ropy, especially if followed by inconveniences like those above noticed.

We shall now quit M. Daubenton with a few remarks, which will be of a general description.

* Ipecacuanha, when powdered, is commonly distinguished into the brown, the grey, and the white; of which the last is in little esteem.

† Where powders do not readily mix with *water*, it will save trouble in general and render the dose more certain, to mix them with something less fluid; and where the dose is daily repeated, lozenges offer a form which is portable, and therefore commodious. Lozenges have been made and sold, containing each a small quantity of ipecacuanha, thus admitting of easy variations in the dose.

1. A moderate portion of fluid added to our *solid* food, and an increase of its surfaces by chewing, will facilitate its intermixture with the juices of the stomach and pancreas, and with the bile. 2. We may assume it as a principle in our constitution, that since purgatives may become emetic, and emetics may become purgative; our digestive organs are to be considered as a *connected whole*. 3. Whatever tends to produce vomiting or nausea, (besides its effect within the stomach and on the pancreas, &c.) also produces bile; and the increased bile following from the operation of very gentle doses of the emetic, passing downwards, assists digestion, and consequently the formation of a stool.* 4. Laxatives with many persons succeed best when compounded (perhaps on account of some difference in the functions of the various parts to be acted upon,) and therefore other purgative articles may be combined with ipecacuanha, if found necessary, care being taken to regulate the general strength of the composition accordingly. 5. As the disease above noticed is durable in its tendency, it is satisfactory to know from M. Daubenton, that ipecacuanha may be taken for a long continuance; and rhubarb also, which may be made one of its adjuncts, may be constantly employed; for it creates no costiveness which the next dose of the opening medicine will not remove. 6. The want of distinction between aperient and purgative medicines, is probably the principal reason why many of the Americans and English resort to quack medicines; notwithstanding a small portion of a common purge, judiciously selected and daily repeated, would equally well answer; to say nothing of a change of diet and regimen. 7. The French themselves, instead of using a daily injection of warm water to correct a costive habit, will find the expedient of M. Daubenton more natural and convenient.

* A case which occurred in 1728, is related in the London Philosophical Transactions, by Dr. Stuart; where a person was deprived by means of a wound, of the flow of the bile into his intestines; in whom it was in vain attempted by all the resources of art, to procure a stool. No pus was formed; and the belly was distended with *wind*; as the gall bladder was the only internal part which was wounded. The paper of Dr. Stuart (which is ably written) is worthy of consultation. This writer considered the peristaltic motion as dependent upon the *bile*.

Should this expedient indeed fail with any, a substitute of the same description ought to be sought for ; since a costive habit is the frequent source of some of our most painful and most fatal diseases ; besides being unfavourable to general health, to good humour, and even to comeliness : and the remedy for it ought to be commodious and effectual.

Here closes the first branch of our subject.

II. Ipecacuanha may be employed under certain circumstances, in very small doses, to procure *vomiting*.

In all cases of *fever*, Dr. G. Fordyce says, that the stomachs of most patients will bear a *grain of ipecacuanha* without occasioning sickness ; but that few patients will bear *two grains* without sickness." Sir Gilbert Blane confirms this by stating, that "small doses of ipecacuanha taken *alone*, twice or thrice in the day, may be given (in cases of dysentery) in the dose of two grains in athletic constitutions, such as those of seamen ; but that in more delicate constitutions, such as are commonly met with in private practice, one grain is found a sufficient dose." Assalini, speaking of the disease *called* the plague, says, that "when he met with symptoms which convinced him that the *primæ viæ* were loaded, and when the patient had been *already sick* ; he preferred making him drink a glass of tepid water, with two ounces of olive oil, in order to evacuate the stomach, without irritating or enfeebling it by an emetic." Dr. Pye goes farther ; he affirms, "that to persons of every age, of either sex, in any stage of any disease, *where emetics are indicated*, though the patient be in the *weakest* circumstances, from half a grain to four or six grains of ipecacuanha may be given with the utmost safety and great success : and that where there is a *disposition to puke*, it will seldom fail of answering the intention of the prescriber." Under this impression, Dr. Pye began with two grains of ipecacuanha, made into a draught with half an ounce of aqua lactis alexiteria and one dram of syrup of violets. With the great majority of patients this draught appeared to suffice ; gentle vomiting commonly occurring, without purging ; though sometimes no material effect whatever followed, except the cure of the patient. When Dr. Cullen, in his *Materia Medica*, objects to the authority of Dr. Pye on this occasion, he overlooked the fact, that Dr. Pye required that there should be "something offending the stomach," and that "nature should

point out this remedy," and that very many are the circumstances in which it is needless to give a *full* vomit.*

It may be laid down then as a rule (which we shall afterwards confirm,) that there are cases where mere debility ought to form no objection to the administration of an emetic; though the emetic ought to be as gentle as possible. The rule however, has always this exception; namely, that where the sickness is merely *symptomatic*, the propriety of employing the emetic will depend on the nature of the primary disease. Time may add other limitations; for it is seldom that we arrive at perfect truth in our first attempts. In the mean time we may be content with using slight emetics, where circumstances will permit it; remembering always that there are other cases, where the administration of such as are more powerful will save time and distress, and prevent the effects from being purgative.

The addition of a few practical rules for managing vomits, may find a suitable place here.

1. Sydenham gave his emetics two hours after a *light dinner*; for which two reasons seem to occur; first, that the straining may be more easy, in consequence of something bulky and heavy being present in the stomach to lessen its agitations; and next, because *nature* in this case previously unlocks the bilious system. 2. The dose of an emetic should be moderate compared with the occasion; since its strength may be increased at short intervals. 3. An anodyne should accompany the first part of the dose, to make the puking easy; and an anodyne and a cordial should follow the last of the operation, to tranquilize the system. 4. Though the popularity of antimony and ipecacuanha, and the formidable name and sometimes disgusting taste of the vitriols, drove the vitriols for a time out of use; yet their

* See Fordyce on Fever, (American edition) third Dissertation, second part, p. 324:—Sir Gilbert Blane on the Diseases of Seamen, (third edition, London,) p. 357:—Neale's translation of Assalini on the Plague, &c. (American edition,) p. 43:—Pye, in the Medical Observations and Inquiries, London, 1, 244, 246, 262, and 267:—and Dr. Cullen on the Materia Medica, (American edition,) 2, 268.

It was in 1756, that Dr. Pye published his remarks, which included the minutes of 130 cases treated as above mentioned; the greater number of which occurred in 1744 and 1745, and the rest from 1754 to 1756 inclusive: the names of the patients being in general exhibited.

speedy and easy operation, seems again restoring them to favor. Even the blue vitriol (*sulphas cupri*) is found in general to be safe, and mixes well with ipecacuanha; but it acts chiefly on the stomach, while ipecacuanha and antimony act besides on the system at large. 5. To prevent ruptures in the blood vessels in connexion with the intestinal canal, the patient while straining, should sit or stand, or else should lie on the stomach; to avoid a *twisted posture*. 6. Huxham, Fordyce, and others, after the first action of the emetic, throw warm fluid into the stomach to *wash* it; but if this fluid be itself emetic (as chamomile tea) it will probably aggravate the effects of the primary emetic. 7. The *improper administration of food* in very long illnesses (especially if the stools, urine, or perspiration, give NO DUE OUTLET for it) will often call for a gentle emetic; notwithstanding the apparent debility of the patient.* 8. If the straining be violent, a *very few drops* of laudanum taken *from time to time* will commonly gradually check the irritation (as in

* Dr. Rush says, that "he believes with Dr. Huxham, that patients when very weak in acute diseases, bear depletion by puking, much better than by bleeding, purging, or sweating." Dr. Huxham himself affirms, that by using gentle methods at any period of a putrid malignant fever, "he never feared to *puke* or promote a stool or two, when *indicated* by a nauseous bitter taste in the mouth, sickness of the stomach, niderose and fetid eructations, or by too great costiveness, tumid, abdomen, borboryga, griping pains, &c." and he affirms, that a "mild *vomit* may be given with much less ruffle to nature, than a *common purge*." See Dr. Rush's edition of Sir John Pringle's work on army diseases, p. 150; and Huxham on Fevers, &c. a 7th English edition, p. 112, 113, and p. 81. Dr. Rush in his edition of Sydenham, (p. 15, 18,) again states his agreement with Huxham, as to the safety of pukes and purges "in the *close* of *low* chronic fevers;" and in one case, he is evidently counteracted by Sydenham (who sometimes prescribed an emetic on the *twelfth* day of certain continued fevers.

Still later experience shews the innocence of emetics *in many cases of debility*; and it is here in particular, that Dr. Pye's practice should be attended to for the first twenty minutes; (not forgetting a very few drops of laudanum at the outset.) At the close of twenty minutes, the practitioner will act according to circumstances.

It is a comfort to know, that the *primæ viæ* generally speaking are easily accessible, and that they essentially govern the rest of the system; and that there are methods also by which excessive puking after the administration of a moderate emetic, can commonly be restrained.

the case of violent purges :) and if it be wished to proceed more rapidly, external applications, (as warmth, stimulants, &c.) should be resorted to; rather than an increase of the laudanum. 9. Dr. Fordyce thinks that two or three evacuations upwards, are sufficient in the case of an emetic. Where a smart concussion of the system however is sought for, diluents are often forbidden; though probably a quick succession of common emetics would better answer the end proposed than this *dry vomiting* (as it is called.) 10. Dr. Fordyce also justly says, that it is by no means indifferent in *fevers*, at what hour of the day an emetic shall be administered; and therefore he fixes upon 7 or 8 o'clock in the evening; that the course of the operation may concur with the habits of nature, first in producing *sleep* at night and next in establishing a *crisis* after the nightly exacerbations of the fever. But he never employed any other emetic substances on this occasion than emetic tartar and ipecacuanha, and he had chiefly to treat typhus and intermittents. Here we terminate our rules.

Thus then we have seen under our first head, that ipecacuanha may be given in *small* doses, to procure daily *stools*; and under our second, that like doses may produce gentle discharges from the stomach by way of *vomiting*.

We now come to a case which in several respects seems to be the reverse of this.

III. Ipecacuanha is said to have been given in some cases, in doses of sixty times the amount necessary for producing both stools and vomiting in the preceding cases; and yet without producing either. This assertion is contained in two letters written by Mr. William Balmain (acting as chief surgeon to the territory of North-Wales;) bearing date respectively December 21, 1795, and September 18, 1796.

This gentleman, having observed a successful mode of curing dysentery by large doses of ipecacuanha and laudanum in-

Before closing this note, let praise be acknowledged as the due of Dr. Rush, for his excellent editions of Sydenham, Pringle, Cleghorne, and Hilary; which deserve to be re-printed among the English themselves. Lind on fevers, and Bree on asthma, are two other very important works which Dr. Rush recommended to the notice of his countrymen; though he furnished neither with notes or prefaces.

troduced by a quack ; says that he “ gave ipecacuanha frequently to the quantity of two drachms, with the addition of sixty drops of tinctura opii ; and in *many* cases found, that a *dose or two* was sufficient to remove every dangerous appearance ; and that afterwards, by a due attention to the proper use of *restoratives*, the cure in a number of instances was completed. I administered the medicine (he adds) in various forms ; and *always* observed it to answer best in the form of *pills* ; which were made *as large as possible* to admit of their being swallowed ; and if the patient kept still, and lay on his back, with his head and chest tolerably elevated, *nausea* seldom or ever followed the taking of the medicine ; and oftentimes it happened, that he had not a stool the succeeding day ; although previously to taking the ipecacuanha, the gripings were violent, and the discharge of blood frequent and in large quantities. I have only to add (says the writer,) that *before I used the ipecacuanha*, I generally administered the *sal cathart. Glaub.* and always thought myself more successful in consequence of its use.” In a letter, dated nine months later, he further writes, “ that he has found the medicine in almost every instance attended with happy consequences when administered in this same kind of way”* Thus far Mr. Balmain.

We observe upon his account as follows : 1. His medicine operated gradually ; the ipecacuanha being made into large pills ; and both this and the laudanum finding the patient in a state of rest, with his chest elevated, both articles became mixed instantly with the contents of the stomach, and acted throughout in a diluted form. 2. The anodyne being proportioned to the ipecacuanha, at the rate of one drop to two grains ; the emetic powers of the latter were kept in order ; and its other qualities by which it acts, were left at sufficient liberty to produce the good effects expected from them.

But still Mr. Balmain's practice, if it depends in any essential degree on *rest* and on *posture*, is liable to be disturbed by carelessness and accident. Besides, Mr. Balmain's ipecacuanha may have been weak. His practice therefore is to be cautiously adopted, in the extent to which he carried it. But the combination of the ipecacuanha with an anodyne is justified by the practice of others, as well as of Mr. Balmain. He acted judiciously

* See Memoirs of the Medical Society of London, Vol. 5, 210—214.

also in the previous employment of Glauber's salts ; a solution of which taken *hourly* for a day or two, has often alone cured the first stage of dysentery, without other help, unless that of an anodyne combined with it.

Let us now lastly proceed, after having spoken of large doses of ipecacuanha taken by the mouth, to state instances where it has been introduced as largely by *injection*.

IV. Of large or repeated doses of ipecacuanha taken by *injection*.

Our first authority will be Dr. Pye ; and two cases will be briefly detailed from him of different natures, but each instructive.

Case I. To a child of the age of *six weeks*, "almost expiring with *watery stools*," he gave one grain of ipecacuanha, as an emetic ; and in the *same day* he ordered *three* clysters in succession ; each clyster containing white decoction, damocratic confection, and *eight* grains of ipecacuanha. Some jelly, made with starch and cinnamon water, was at the same time taken every second hour by the mouth. The cure of the infant is stated to have been accomplished *in a day* ; the jelly being continued as a mere preventive.

Case II. A child of four years and eight months had a "violent diarrhæa, attended with continued racking pains, *consequent upon the measles*." She took *daily* two grains of ipecacuanha, for an emetic, which was one day given twice. Clysters also were used on two days, and on both those days repeated ; being composed as above, with the addition of starch. The rest of the treatment consisted of rhubarb, starch, and pulv. e bol. sine opio ; with a cretaceous julap. A cure followed, though the child during five days was kept incessantly in a state of puking or purging.

But this treatment is mild, compared with that of Mr. Clarke ; who in his work "on the nature and cure of the diseases of the East and West Indies," is said to have prescribed three drachms, of ipecacuanha-root ; bruised, and boiled in a quart of water, till reduced to a pint ; to be given by injection, two or three times in 24 hours.

In adopting violent remedies, practitioners ought to use extreme caution. First, the original prescriber may have been deceived by his weights or measures, or the quality of his ar-

ticles. Next, he may have been misled by nurses and attendants. Thirdly, some apparently trifling circumstance may be neglected. Fourthly there may be something peculiar in the patient, the climate, or the season. In a word, every thing may be summed up in this plain and well known fact ; that many articles are introduced into the world under very promising recommendations, and yet are soon neglected ; and happy is it, if nothing mischievous has contributed to the decline of their reputation.

We have thus noticed *some* peculiarities in the management of ipecacuanha : but we have not treated of the history of this drug as an article of the materia medica, though somewhat curious ; nor spoken of its various uses. These particulars are left for the notice of others.

A SINGULAR CASE OF OVARIAN DROPSY.

BY LYMAN SPALDING, M. D.

[For the New-England Journal of Medicine, &c.

IN July, 1812, I was consulted by a lady of Portsmouth, New-Hampshire, on account of an enlargement in the region of the right ovarium, accompanied with an œdematous swelling of the left foot and ankle.

From a critical examination of all the symptoms, I was convinced that the swelling was an ovarian dropsy ; particularly as the other parts of the system were taking on dropsical action.

I made a careful examination of the intumescence, in August ; it was globular, smooth, and equable, without pain or discolouration, and located in the precise region of the right ovarium. I was not satisfied that I could perceive any fluctuation. Occasionally a pain darted down the thigh in the course of the round ligament. At this time the œdematous swelling had affected the whole of the left leg, and was apparent in the right foot and ankle. The general health was not impaired, and the appetite and sleep were natural.

The examination, as well as every symptom and appearance, confirmed me in my opinion of the case being a dropsy of the ovarium.

The high respectability of my patient, her amiable and endearing behaviour, her personal attachment, and the solicitude of her husband and friends, all induced me to pay more than common attention to the case. I perused every author who had written on the disease; I detailed the symptoms and appearances to the physicians in the town; I submitted the case to many of my correspondents; and finally requested a consultation.

After much entreaty with the patient, who certainly possessed the most delicate and chaste mind of any lady whom I ever saw, she consented that doctor Pierrepont, of Portsmouth, should be called in consultation.

It was the final opinion * of the doctor, so far as I was made acquainted with it; and of all the other gentlemen, to whom I stated the case, that it was a dropsy of the ovarium.

The patient continued without any material alteration, but on the whole rather improving, till about the middle of November, (thanksgiving-day) when my benevolent patient was standing in a chair and reaching on to the highest shelf in a closet, to bestow her wonted charities to the poor, and making an exertion to reach to an extreme height, she felt something give way suddenly in the region of the tumour. She was obliged to sit down immediately and was very near fainting. When she rose up, she was astonished to find that the rotundity of the tumour had

* Doctor Pierrepont's opinion of the case, as delivered in writing, to my friend and late pupil, Mr. W. E. Langdon, after the death of the patient, is as follows:

"I can feel very little doubt of Mrs. ——'s having been originally afflicted with scirrhus, although at my first visits for want of time to see the progress of the disease—from the want of a certain freedom in first impressions which is gained by repeated interviews, I considered the case as a pure idiopathic dropsy.

"My opinion now is that the dropsy was a sequel of scirrhus—that the apparent rupture of the ovarium might be that of a hydatid, that the apparent convalescence was merely a fleeting quiescence of morbid action, but that there was no real improvement of health, no diminution of disease. That there was not delivered to the physicians the precise history of phenomena, so that the pathognomic symptoms could be selected."

disappeared, and that the contents were diffused uniformly through the cavity of the abdomen.*

I saw her in this situation, but so satisfied was I of the nature of the case, not from my opinion alone, but from the concurrent testimony of all the gentlemen who were consulted ; that it did not occur to me to examine for a fluctuation of water in the cavity of the abdomen. In fact, the present state of the case was so novel, being without a parallel, that my mind was wholly employed in investigating the issue of this new state of things.

My opinion, as delivered to my patient, was, that the ovarian sac had burst, and that the water was diffused through the cavity of the abdomen ; that it would be absorbed, and the patient recover.

The patient went on well, and there was every appearance in favour of the prediction being fulfilled.

The last of November, I removed from New-Hampshire to New-York, at which time the swelling caused by the diffusion of the water in the cavity of the abdomen had subsided ; the swelling of the feet and legs had disappeared ; there was neither pain, swelling, nor discolouration in the region of the ovary ; and the general health of the patient was rapidly mending.

In this state of the case, I did not hesitate to felicitate my patient on her wonderful recovery ; which she considered as nearly complete, and expressed to me a hope that she should need no further medical aid ; but desired me to detail the case particularly to doctor Pierrepont, that he might be well acquainted with all the circumstances, if it should be necessary to consult him.

On taking leave of the family, the husband requested me to consult the doctors Warren of Boston, doctor Rush of Philadelphia, and several of the most eminent physicians in New-York,

* Doctor R. S. Kissam, of this town, informed me of a case of ovarian dropsy, of many years standing, in which no fluctuation was perceptible. The patient fell from a carriage, and burst the sac ; the water was diffused through the cavity of the abdomen, and fluctuation was perfectly evident. He waited several weeks for absorption, but it did not take place. He then tapped her, and drew off twenty-six pints of bloody water. The patient recovered.

and transmit him their opinions. I did so; the doctors Warren had no hesitation in saying the case was dropsy of the ovarium.

It was not till February that I saw doctor Rush. He told me that doctor Pierrepont had written a statement of the case to him, and that he had given his opinion, that it was dropsy of the ovarium.

But alas! how uncertain is every thing in this transitory world. Not long after I left New-Hampshire, a change took place in the nature of the disease; and my beloved patient, who was endeared to the world by ten thousand tender charities, who had all the attachments, which the best of husbands, agreeable family connexions, and wealth could bestow, and above all, who was fitted and prepared to enjoy this life, by a constant preparation for a future, was doomed to suffer and die with a scirrhus of the uterine organs.

It is not at all extraordinary that this case should have changed from a dropsy of the ovarium to a scirrhus of the uterine organs; when we take into consideration, that there was an actual rupture of some part of the ovarium; and the great liability of that organ to scirrhus affections.

CASE OF MALFORMATION OF HEART.

BY ROBERT THAXTER, M. D.

[For the New-England Journal of Medicine, &c.]

THE subject of this case, a male, was at birth apparently well formed and healthy, and remained very well eight or ten days. At this time he was attacked with the ordinary symptoms of cold which continued a long time very troublesome. He became very emaciated, which was attributed partly to the above cause, and partly to the mother, whose health was at this time bad. He remained in this emaciated state till he was about a year old, at which time he began to grow corpulent, and continued so till his death; though his extremities were small compared with his body and head. As soon as he began to move much, he was observed to breathe with difficulty, and his countenance to become livid. Rest generally restored him to

a natural state. Cold, especially a cold wind, affected his respiration, sometimes almost producing suffocation, and rendered his surface very livid. Very hot weather had nearly as bad an effect, as cold. Eating any thing very hot produced the same effect. If he cut himself the blood, which flowed, was uncommonly dark and thick, resembling molasses. He was always very sensible to cold. These symptoms and effects continued through life. As his age increased his general health mended. His mind was as strong and active as common, and he made greater proficiency at school, than his mates of equal age.

At the age of seven years, he fell, and struck his head, which deprived him of his senses some hours, and finally left him blind of one eye. The eye became blind probably in consequence of inflammation.

At eleven years of age, he went to bed as well as usual; but soon after vomited three times, and then became insensible. He lay with the ordinary symptoms of apoplexy about three hours, and expired.

The temporal artery, being opened soon after he became insensible, discharged blood as dark as venous blood.

Dissection ten hours after death.

No very material deviation from health appeared in the trunk except in and about the heart. The pleura and pericardium contained a small quantity of water. The intestines forty or fifty teretes. The stomach was entirely empty. The large veins were rather full of blood. The lungs were darker than common. The right ventricle of the heart was much thicker than the left, and nearly or quite as long. The aorta arose almost equally from both ventricles. The entrance to the pulmonary artery was indurated and small, compared with the size of the artery. The foramen ovale was open about a quarter of an inch in diameter. The ductus arteriosus was pervious by a small probe.

In the head there were two or three ounces of extravasated blood, and all the vessels of the dura mater and brain were uncommonly distended. A small coagulum rested under the beginning of the medulla oblongata. The ventricles were all filled with coagulated blood, particularly the fourth, which was so distended, that the texture of the cerebellum was injured.

Case of Angina Pectoris.

Mrs. H. aged between 60 and 70, a free liver and hard worker, with a sanguineous habit, a short neck, was troubled with a violently hard and dry cough, difficult respiration, palpitation of heart, pain across the chest, vertigo on quick motion, and costiveness with a paucity of urine during the winter of 1811-12. Her appetite was good, and she was able to attend to her business till April 1st, 1812. At this time she was suddenly attacked in the night with a violent and irregular palpitation of the heart, severe pain across the breast darting into the arms and shoulder, a sensation of fulness in the left hypochondrium, very difficult respiration, and an almost total stagnation of blood in the extremities, attended with coldness of the same. Her pulse at this time was very irregular, sometimes hardly perceptible, sometimes strong, hard and quick. Countenance flushed, and of a livid hue. Tongue furred white. Some nausea. Her distress was so great as to occasion constant tossing and partial delirium.

Gave immediately Spt. Camph. warm wine, and soon after an emetic of Ipecac. Applied warm fomentations and friction to extremities, and an epispastic to left hypochondrium. After this gave æth. sulph. and tr. cast. e. p. frequently.

2nd day. Respiration easier. Pains and distress much less. Warmth more uniform. Countenance more natural. Pulse forty in a minute. Had puked several times during the night, but threw off nothing but mucus.

Continued æth. and wine whey, frictions, &c. Gave also pills of op. gr. i. and submur. hyd. gr. ij three in a day.

3d. Pulse about ninety and strong, accompanied with other febrile symptoms. Respiration still better. Ordered Vin. Ant. and Spt. Mind. alternately in small doses. Continued the pills, and occasionally æth. sulph. and t. castor.

4th. Less pyrexia than yesterday. Tongue cleaner. Pulse about forty.

From this time to 14th, she took the pills twice a day, vin. ant. four or five times, drank of wine whey, &c. and kept the bowels open. Took of æth. and tr. castor whenever her respiration and palpitation of heart became troublesome.

She gradually became more comfortable, her cough subsided and the paroxysms of dyspnœa and palpitation became less frequent. Pulse varied generally from thirty-five to forty-five. Urine commonly in small quantity, and high coloured.

After 14th, she very much neglected medicine. Used a nourishing diet, and occasionally took some antispasmodic, and some diuretic drinks. She continued in this state till about the last of May.

At this time her cough increased very much, and was attended by an expectoration of white frothy mucus interspersed frequently with hard greenish lumps. Dyspnœa and palpitation increased also, and were accompanied with total loss of sense for a minute or two at a time, and sometimes with convulsions. Pulse remained slow; but became irregular and intermitting several days before death. Urine was secreted in very small quantity; but she had frequent yellow watery stools. A nausea was almost constantly present the last week of her life.

June 6th, after passing a very restless night, took some breakfast comfortably, and in about twenty minutes after expired almost instantaneously.

Dissection twelve hours after death.

The lungs were dark coloured and stuffed with blood. The left lobe of which adhered to the pleura. The liver was also harder and darker, than natural. Marks of previous inflammation appeared in the thorax generally. The heart was of the usual size and colour, except on the lower flat surface. Here it was variegated by light coloured spots, which in a degree resembled cicatrices of ulcers. The semilunar valves of the aorta were thickened and cartilaginous, and one of them slightly ossified near the mouth of one of the coronary arteries. The coat of the aorta at its curvature was ossified the size of a finger nail. A portion of coagulated lymph nearly filled the right ventricle and pulmonary artery.

Case of Dropsy, which probably arose from disease of the heart and arteries.

Dr. J. naturally athletic, when about twenty-five years old, was attacked by pneumonia, which was supposed at the time to have terminated in suppuration. A few years after he broke two or three ribs. These injuries occasioned a partial obstruc-

tion to respiration, and weakness, and tendency to inflammation in the part, for which he was usually bled every year. He was subject a great part of his life to a cough, which appeared to be sympathetic with his stomach. He was also subject to violent pain in his head, for which he took many emetics. Ipecac. always produced asthma, therefore he always took tartrite of antimony, which three times reduced him almost to death's door. About the year 1790, he was provoked to a sudden gust of passion which produced a singular sensation of the heart, which he used to say, continued in some degree ever after. From that time to the winter of 1809-10, he enjoyed as good health as common. The very cold Friday night of this winter, being called from his bed to visit a patient, he was very much overcome by the cold, which produced such a stricture across his breast, that he was hardly able to reach the patient's house. From that time to the winter of 1810-11, the stricture remained, attended by intermitting pulse, and paroxysms of violent palpitation of heart and of difficult respiration.

December 1810, he was attacked by fever and the common symptoms of pneumonia. He was bled, clystered and otherwise treated like a pneumonic patient. He began to mend in about a week, and continued to do so several weeks, excepting that the paroxysms of palpitation, and difficult respiration increased in frequency. His pulse became more regular, but his respiration more difficult, especially in a recumbent posture. In March, he was bled again, though his pulse and general debility forbade it. This appeared to relieve the dyspnœa; but he soon began to bloat. By the last of April he had become generally swollen. His abdomen was enlarged 5 or 6 inches, and his legs in proportion. His respiration was become so bad, that he could not lie in bed half the night, and while he did, he was very restless and slept very unquietly. Pulse low and frequent very little intermitting. His flesh cool and inelastic. Urine small in quantity. Appetite pretty good, and bowels regular. He was able to ride in a chaise tolerably well; but could not walk ten rods without stopping.

At this time he rode ten miles a day four days in succession. The journey appeared to increase his urine. Immediately after his return he commenced taking submur. hyd. two to four grains every night, or every other night, which usually cathar-

tised him two or three times next day, and proved quite diuretic. He took also tinct. digit. purp. ten or fifteen drops every night. This proved a good anodyne, and rendered his pulse slower and fuller. He ate principally flesh, omitted water his usual drink, and drank only a cup of coffee in the morning, a glass of wine at noon, a cup of tea in the afternoon, and a glass of gin and water at night. Frictions were employed night and morning.

The water began to diminish immediately on adopting this course, and in ten days was apparently all gone. He was now very weak, and his mouth sore. He omitted the submur. hyd. and took pulv. rub. ferri, in wine twice a day. He used as much exercise as possible. From this time he gained strength and remained tolerably comfortable till the winter of 1811-12, by living as before stated, and taking a few grains of submur. hyd. every fifteen or twenty days.

As soon as the cold weather commenced, he began to lose ground, and by January 1812, had become nearly as bad as he was last April. A similar plan of cure, with the addition of a steam bath to the lower extremities two or three times a week, relieved him very much. By April however, his symptoms had become quite as bad as they were last April, attended with greater debility. He now took submur. hyd. every night or every other night, tinct. digit. purp. g. 10 to 20 every night and drank freely of a decoction of millet seeds. In about ten days he was reduced to nearly his natural size, but was very weak. The submur. hyd. did not cathartise him so much, as it did last spring, nor was his mouth so sore; but he perspired more freely. From this time during the summer, he pursued a similar course to that of last summer, with similar effect. He has always since the first attack respired with difficulty; been unable to lie with his head low, frequently experienced very restless nights, and occasionally suffered paroxysms of severe palpitation of heart and suffocation. His pulse has generally been regular and feeble.

The cold weather aggravated his disease, as that of last fall did, and by the last of December, he was unable to rest in his bed, or exercise much. He had recourse to submur. hyd. again with diuretic drinks, but without much good effect. About 1st February 1813, his feet and ankles were punctured, one of

which inflamed, and threatened sphacelation. The night after the inflammation commenced in the foot, he was suddenly attacked by violent palpitation, difficult respiration, cold extremities and sweat, and nausea with general distress. Heat was applied externally, and hot gin and water and other cordials administered internally. After some time he puked, and ejected much mucus and a chocolate coloured matter. This gave some relief, and his warmth gradually returned. He had not taken the submur. hyd. very regularly; but from this time he took it every night till his mouth became sore, and at the same time took salt of tartar dissolved in a decoction of gentian, Winter's bark, and juniper berries. Drank also of gin. Little apparent effect was produced, till suppuration took place on the foot. The foot was excessively painful eighteen or twenty days, when it opened and discharged freely. Upon this the anasarca entirely subsided, and his respiration became more free; though the abdomen remained quite as large. The weather being very inclement all February and first part of March, a great degree of artificial heat appeared absolutely necessary to his existence.

After the middle of March, the weather became mild, his distressing symptoms mitigated, and he gained strength enough to walk his room. He soon however, became more unwell. His pulse intermitted this spring more frequently, than it had since his attack. He again took submur. hyd. gr. i. at night. Eight grains affected his mouth. Not finding relief, he soon refused to take medicine, except a small quantity of vin. gent. comp. and a decoction of cinchona, and finally discontinued these, thinking they increased his distress. May 9th, a violent burning in the stomach and œsophagus seized him, and he began to vomit. This lasted thirty-six hours without much cessation. The matter evacuated was principally black bile. An opiate finally stopped these symptoms so far, that he puked no longer with distress; but ever after threw off his food, and sometimes yellow bile, as an infant throws off its milk. He many times during the remainder of his life was attacked in like manner, and always relieved by opiates. During the whole of his sickness he complained of great soreness at the pit of his stomach.

He died rather suddenly, June 10, 1813, aged 64 years.

Dissection twelve hours after death.

The abdomen contained eleven quarts of yellow water. The peritoneum and contained viscera generally exhibited marks of inflammation, being very red and surcharged with blood. The colon in some places exhibited marks of incipient sphacelation. The pancreas was very much indurated, and many mesenteric glands were obstructed. The gall bladder contained a quantity of black bile, similar to that which he puked.

One sack of the pleura contained a gill of water, the other a little more, and the pericardium perhaps half the quantity. The lungs adhered to the pleura partially, on both sides. On cutting into them they appeared loaded with a thin mucus.

The heart appeared externally natural; but there was a complete ossification of the base of one of the mitral valves of the left ventricle, and of one coronary artery. The opening from the right auricle to the right ventricle was uncommonly large. The heart contained a coagulum, which was very firm and extended into the division of the pulmonary artery.

The aorta from the great curvature to the bifurcation of the iliacs was more or less ossified. In some places the ossification extended half the circumference of the artery and an inch in length. The iliacs were in the same situation.

REMARKS ON THE EFFECTS OF ERGOT IN CAUSING THE WINTER EPIDEMIC.

BY DR. HENRY S. WATERHOUSE.

[For the New-England Journal of Medicine, &c.]

BY a letter from Doct. Stearns of Albany, of November last; and from several recent newspaper publications, I learn that the effects of spurred rye or ergot on the human system when taken into the stomach, are much discussed in the eastern parts of the union.

As I have not yet received from your agent in Albany the numbers of the New-England Journal, I have no means of knowing the manner in which that subject has been treated in this work. Nor have I at present any source excepting those abovementioned from whence to ascertain the arguments and opinions that may

have been advanced relative to this matter. My conclusions of course must be made almost exclusively from my own observations on the appearances of those forms of disease which are by some supposed to be produced by ergot when swallowed with our food; and from my experience of its effects when administered in certain cases as an article of medicine.

The first newspaper publication on this subject of which I have knowledge was an article in a New-York Herald of Feb. 21st 1816, signed S.

——“ If I am correctly informed by several intelligent medical students from the western parts of this state, it is a general opinion among the physicians there that the spotted fever is caused by the use of bread or whiskey made of ergot or spurred rye.”

The writer goes on to detail deadly forms of disease, and the opinions of medical men in Europe, in support of the above hypothesis. He concludes, “ Upon the whole, there can be no doubt that it is a very deleterious substance, and that its effects upon the human system are modified by various circumstances which perhaps the present state of our knowledge does not permit us to appreciate. It is an object of interesting inquiry how far the powers of ergot may be modified by distillation and combination with alcoholic liquors, and whether this or any other cause sufficiently explain why the use of ergot in Europe produces a convulsive epidemic terminating in Typhus, and in other instances the dry Gangrene described by Baron Boyer, while in America it causes a disease in many respects unlike either.

The next newspaper notice was in a New-York Herald of March 2d.

“ Spotted Fever.” Q. 1.—2d. “ Is there any analogy between the ergot of rye and the smut of wheat ?

3. “ Have those places ever suffered in any considerable degree with the disease, where little or no spirits was used, except such as was imported or distilled from molasses ?

A Physician.”

The next in succession was an essay by the erudite and ingenious Doct. J. Mann, of Massachusetts, published in a Herald of the 23d of March, taken as we are informed from the Boston Patriot.

This article commences with a pretty copious quotation from the Dictionary of Arts and Sciences, vol. xvii. Philadelphia edition, art. Secale; and brings before us diseases and death in their most horrid shapes.

He says, "For the present we shall not attempt to obviate an objection which may arise, that the above forms of disease were different from those, which are supposed to have been produced by the same cause (spurred rye) a few years since in New-England, and more recently in this town. If it can be demonstrated that spurred rye is destructive of the vital principle, it is now as much as we contend for. If the effects of spurred rye, when taken into the stomach, are to destroy life, it is immaterial whether the loss of vital action shews itself first in the toes, the nose, or the stomach and bowels. The final issue, in either case, will be mortification and death."

There are other remarks and some statements in this paper principally in relation to the deleterious effects of this material when administered as a medicine, that will be noticed hereafter.

The succeeding and last newspaper essay which has appeared in this part of the union, is in a Herald of the 6th instant, (April) taken from the Boston Daily Advertiser of March 11th, originating likewise it would seem from Doct. Mann; and "so much of the communication as relates to the symptoms of the disease, and the belief that it originated from a poisonous substance called *ergot*, found in rye, are fully confirmed by Dr. Danforth."

That part of the communication which in this place I wish more especially to bring into notice is the following:—

"An occurrence of a severe disease, the past week, in a family of this town, in connection with alarming mortality in various places of the state, has created suspicions that *ergot*, or spurred rye, was the cause of those violent diseases, which in many instances precipitate their victims to the grave in the short period of two or three days.

"The late winter epidemics are new in New-England, and they appear under such forms as were not to have been expected during the cold seasons of the year. In some instances, these epidemics may have been combined with the more common winter diseases, generally called spotted fever, which indeed appears under every possible shape. Among the organs of the

body, it has been fully demonstrated, that the stomach and bowels are those which more generally and most severely suffer.

Since the rage of yellow fever in our southern towns in 1793—95 and 98, disease has not appeared under circumstances which so imperiously demand the attention and scrutiny of the American physician as in those forms of winter epidemic that have raged with such wide spreading devastation through our villages and scattering country settlements, more particularly over the northern and eastern parts of the United States, since the winter of 1806—7.

I have witnessed more or less during every season of cold since February 1810, the commencement, progress and termination, of the endless varieties and numerous grades of Winter Disease or Cold Plague, from the overwhelming stupor and deadly appearance of apoplexy, to the slight shiverings, short lived nausea, and wandering momentary pains, of an ephemeral fever. I have watched with solicitude and unremitting attention those ailing of these forms of complaint, in whom diseased action was raging in the lungs, the brain, the skin, the stomach and bowels, the liver, the kidneys, or in the secreting, the absorbent, or nervous systems generally. Most commonly two or more of these organs are diseased in succession, and not unfrequently at the same time. Dissections have proved that in this part of the country the following is the order of aptitude for taking on diseased action in the important organs and viscera of the human machine—the lungs, (in nearly two thirds of our cases morbid action commences in this viscus)—the skin—the brain—the stomach and bowels. But never for a moment did I suspect, and I venture to affirm that no physician in this country ever suspected, that improper diet or aliments has in general or even in any one instance had any considerable agency in producing these things; and much less that a material which is produced so sparingly among us as to be with difficulty procured even for medicinal uses, should be accused of causing “death and destruction” over such an extent of country, and for so many seasons in succession.

I know of no better manner of discussing this subject than by relating simple, undeniable and pertinent facts—such as shall carry conviction to the mind of every unprejudiced man.

I. The Winter Epidemic or Cold Plague, under the various appellations of Pneumonia Typhoides, Spotted Fever, Malignant

Pleurisy, Malignant Dysentery, Cynanche Maligna, &c. has been as rife throughout the three northernmost counties of this state, viz. Clinton, Franklin and St. Lawrence, for five seasons in succession, commencing with February 1810, and terminating with April 1815, as in those parts of Vermont and New-Hampshire within the same parallels of latitude.

II. The commencement and termination of the ravages of those deadly forms of disease which raged from November 1812, till near the close of April 1813, in our army under the immediate command of General Dearborn in Clinton county amongst the inhabitants of that county, Franklin and St. Lawrence, the northwest parts of Vermont, the northern parts of New Hampshire, the District of Maine, the British settlements bordering on Vermont, and the settlements, villages and seigneuries on and near the St. Lawrence river from Prescott to Quebec, were as near simultaneous as ever occurs in the ravages of similar wide-spreading epidemics.

III. The inhabitants of Montreal, and of the settlements above, and on the northern shores of lake Ontario, and the British troops from Montreal to Kingston, were sorely afflicted with the common forms of Cold Plague through the whole of the winter of 1813—14. Dr. Mann will not forget that our troops at the French Mills in this county were during the above mentioned winter (1813-14) severely ailing of Winter Disease, mostly under the appearances of Chronic Diarrhœa, Malignant Dysentery and Typhoid Pneumonia. And that the universally acknowledged and undeniable cause *at that time* of these shapes or forms of Disease was the long exposure to cold and moisture which these troops suffered in their tardy descent of the St. Lawrence.

IV. We have not yet learned, nor do I apprehend we shall hereafter be told, that under similar conditions of atmosphere and like modes of treatment our common forms of Cold Plague over the whole extent of country which I have mentioned, have shewn any material difference in their progress or the fatality of their terminations.

We come now to consider the imputed causes, more especially spurred rye.

1. In the counties of Clinton, Franklin, and St. Lawrence, small quantities only of rye are reared; and of these small quantities but a trifling part is ever eaten by the inhabitants. The

causes are, that wheat is a more certain and more productive crop than rye over this whole northern country, and the immense number of teams employed during the winter and spring months in hauling lumber for the Canada market, and subsisted wholly on rye, oats and hay, uniformly raise the price of the former grain to at least three-fourths of that of wheat. Hence such of our farmers as can raise any rye find it to be much the better way to sell this grain and keep their wheat for the use of their families. I say "such of our farmers as can raise any rye"—The truth is, that in the county of St. Lawrence (the soil of which consists almost wholly of a strong rich clay, perfectly adapted to the culture of wheat) so little rye is grown, that the distillers of whiskey make nearly their whole dependance on Indian corn for manufacturing this deleterious article.

In this county there are but two settlements (three miles in extent on a north road through the town of Chateaugay, and the centre settlement of Moira, small in extent) where rye in any considerable quantity is raised.

2. Ergot is found only in extremely small parcels amongst such rye as is produced in this country. This assertion needs no qualifying; and the following facts will sufficiently substantiate it.

When from the recommendations of Doctors Stearns and Akerly, I first tried in the summer of 1811 to procure spurred rye, intending to use it for medicinal purposes, I failed completely in several attempts. After many fruitless inquiries, I at length heard of a small field, something over three miles from this village, in which rye was growing. I made diligent and careful search through this field, and could obtain only a bare half tea-spoon full of ergot.

Near the close of August, I succeeded in gathering enough of this production to fill, when coarsely powdered, a four ounce vial. I found it by going over a large field, the soil of which was moist and cold, covered with a mixture of summer wheat and rye; and it cost me the labour of myself and of an assistant more than half of the day to gather it.

In November 1812, I thought myself fully justified in giving this powerful material to the wife of Mr. William W. Herrick of the French Mills, then in labour of her third child. I was at that time doing duty with the New York detached militia, sta-

tioned at the Mills. The State furnished me with medicines, and I had no ergot nearer than Malone, seventeen miles distant. I suspected that I should be able to find sufficient for the intended purpose by searching an extensive mow of summer wheat, belonging to G. B. R. Gove, Esq. among which was mixed now and then a few stalks (the produce of one hill in each bunch or parcel of stalks,) of rank, tall grown rye. But I failed entirely, for I could not after a most diligent search find even one solitary kernel or horn of ergot.

My next essay was at the grist-mill of Mr. Buchannan. In this building I found about nine bushels of rye, and with the aid of Mr. Buchannan I succeeded in picking out from that quantity the amount of two tea-spoons full of the medicine.

It must not be forgotten that this quest for horned rye was made but a few days previous to the commencement of the deadly epidemic of 1812—13.

After learning of several publications, some time since before the public, setting forth the beneficial effects of ergot in cases of tedious and lingering parturition, Dr. Morse of Chateaugay, wished to convince himself by actual experiment of the truth or falsity of its character. But he was not able at that time (summer of 1814) to find, in the whole township of Chateaugay, sufficient with which to make even one trial. I gave him some out of my four ounce vial, and he, as also other practitioners in this country, found it very convenient to supply himself with plenty of this substance in the summer of last year, 1815.

I think that at no time, excepting in the summer last preceding, 1815, have I seen in this country any field or parcel of rye, from which a man could collect more than three and an half or four ounces of ergot in a day.

3. It will not, I believe, be denied that our army under the immediate command of Gen. Dearborn, in the autumn of 1812, was well and sufficiently supplied with sound and wholesome provisions, and especially with good and perfect wheat flour for bread, not only at the time but long previous to the coming on of the deadly cold plague of that season. The commencement of severe disease in this army soon followed their protracted exposure to moisture and cold, which they underwent at Champlain, from an almost unequalled severe storm of sleet and snow, the deficiency of tents, want of dry and sufficient woollen clothing, and scarcity of fires.

4. With very few exceptions rye is never used as an article of human food by the inhabitants of the Canadas. And the British troops from Kingston to Montreal, amongst whom, and more especially at the latter place, disease under the usual appearances of typhoid pneumonia and spotted fever, raged with such unparalleled fatality in the winter of 1813—14, were well and constantly supplied with the best of wheat flour, and with other provisions, as peas and meat, of a healthy and perfect quality.

5. In none of the numerous settlements, villages, or seignieuries, between Montreal and Quebec, is rye either raised or eaten by the inhabitants. And yet so great was the ravage of winter disease under the appearances of spotted fever, pneumonia typhoides, and dry gangrene, by the Canadian physicians called *Charbon*, in the winter of 1812—13, that several villages and seignieuries were almost depopulated.

I know of no impropriety in transcribing the following extracts from a letter I addressed to Dr. Pascalis on the 7th of last month, March.

“Had those gentlemen (alluding particularly to Dr. Hazeltine’s paper, *Medical Repository*, vol. III. new series, page 25, and the communication of *S. New York Herald*, February 21st,) witnessed disease as it has appeared in this part of the country in the winter season since February 1810, they would, I am confident, have arrived at very different conclusions.

“That the crops of maize, wheat, rye and barley, in the counties of Clinton, Franklin and St. Lawrence, were never more perfect or healthy than in the summers of 1812—13 and 14, can be proved by the testimony of many hundreds of our most observing and intelligent farmers. And I take it upon me to assert, and every inhabitant of this country will concur with me in the assertion, that during the above mentioned years there was with us no scarcity nor uncommon want of salt, ardent spirits, tea, coffee, sugars, nor animal food. Yet never since the settling of this northern part of the State, was disease known to prevail with such deadly force and extensive devastation as in the winters of 1812—13—14, and spring of 1815.

“On the contrary, by reason of the uncommon coldness, wetness, and late frosts in the spring season of last year, 1815, the

abundant rains in August, and the occurrence of the 'great frost,' as it is emphatically styled, on the night of the 1st of September, the crops of wheat, rye and Indian corn, the only *cerealia* used by our inhabitants for making bread, were not only deficient in quantity, but very imperfect and apparently diseased in quality. This scarcity and imperfection of corn obliged our farmers to kill their swine whilst they were but scantily fattened.

"Owing to the scarcity of money and the exorbitant prices of merchandize since the conclusion of the late war, very many of our inhabitants have been much restricted and not a few entirely prevented the use of tea, coffee and sugar.

"Yet notwithstanding this abstinence from the most common luxuries of life, together with the imperfections" and I may now add *extreme scarcity* "of animal food and bread corn, during no season since the summer of 1804, has so little disease prevailed as since the 1st of November last preceding, in this place and over a great extent of country to the east and west of it."

To convince those who are willing to be convinced by facts, I would state, that in the town of Malone, from the commencement of December 1812 to the close of April 1813, twenty-nine deaths occurred from severe forms of winter epidemic; whereas in the same period of time during the late season of cold, not one death has taken place in this town from any form or shape of winter disease, and only two in the county:—the first was that of an elderly lady of Constable, in whose case disease assumed the appearances of typhoid pneumonia; the other was that of the Hon. J. Nichols, Esq. of Chateaugay, who died of the most common appearances of spotted fever.

Lest gentlemen might say, that in this country our winter epidemic has become milder in its character, or that those attacked are disposed to apply earlier for medical aid, or that our physicians have learned to treat these symptoms more judiciously than heretofore, I will add, that not over twelve cases of disease under any forms or appearances of cold plague have appeared throughout this whole county in twelve months last past, that is, since April 1815.

Those who believe that spurred rye has had not only a common but a principal agency in causing our late deadly epidemics, will permit me to inquire how they will reconcile their *belief* with the circumstances I have detailed?

Will they pretend that in New Hampshire, Massachusetts, Maine, and the eastern parts of Vermont, disease and death should rage at the same time and under similar shapes as in those places, to be mentioned immediately from a cause, which for many hundred miles on the river St. Lawrence, the northern shores of lake Ontario, and the north part of this state, could not have had any agency, for in ninety-nine cases of an hundred it did not in reality exist?

Is it consistent, is it philosophical, to attribute such wide-spreading devastation to an agent that is scarcely found, and which is never used for human food over a great extent of this northern country, merely because it *can* and unquestionably does produce mischievous consequences when swallowed in excessive quantities into the stomach? And what active article of the materia medica, let me ask, is there that may not when improperly administered produce equally mischievous effects?

There is one part of the Herald publication of the 6th of April, that demands our specific attention. "A family the winter past, having used wheat bread, substituted bread composed of rye and Indian corn. The whole family were immediately seized with severe dysenteric symptoms, unusual at this season of the year."

Sudden alterations in diet, and especially a full meal of any victuals made of Indian corn or rye meal, fresh meats, early vegetables, and even the innocent and to many people luxuriant article, healthy cows' milk, after the stomach has for some length of time been disused to them, have so frequently been known to produce very similar symptoms that it is singular the writer should have brought forward these cases as *evidence* of the deleterious consequences of ergot. It is very possible, and there is nothing in the succeeding account of the cases to contradict the supposition, that an unhealthy condition of the rye or corn, and peradventure of both, was the sole cause of the alarming symptoms. The writer ought to have recollected that musty or damaged corn, and all other grain in a similar state, is not an unfrequent cause of death to such animals as are fed upon it. In the winter of 1813—14, a gentleman in New Jersey lost twenty-seven horses, which had been grained with mouldy corn.

So many and such various conjectures may be advanced to account for such sudden and violent attacks of disease, that I

suspect any farther observations on this part of our subject may be dispensed with.

Should it be asked, where then are we to look for the origin or causes of our late extensive and fatal winter epidemics? I answer, to circumstances which have been as common and as wide spread as those forms of disease. Physics and more especially that part appertaining to chemistry, must be better understood before we can arrive at certainty in these matters.

The following extract from my letter of the 7th of March to Dr. Pascalis, will express in short my opinions on several important parts of this discussion.

“That diseased vegetable productions and putrid meats, when taken into the stomach, may be and frequently are productive of the most fatal forms of disease, no one will deny. But these appearances of disease are materially and substantially different from the appearances or forms of our cold plague or winter epidemic. In the former, diseased action uniformly commences in the stomach, though by sympathy it may be communicated to various and important organs or systems of the animal machine. In the latter case, whether it assumes the shape of spotted fever, typhoid pneumonia, malignant dysentery, or apoplexy, diseased action at its commencement has its seat almost entirely and perhaps exclusively in the minute extremities of the venous system.

“Torpor of the receiving mouths of the veins seems to constitute the proximate cause of these forms of disease. An excess of carbon in the human machine will, I believe, be found to exist as the immediate cause of this venous torpidity; that is, superabundance of carbon in the system operates as the general and common predisposing cause of these malignant and deadly forms of disease.

“As to the remote and exciting causes, I know of nothing in them essentially different from the usual remote and exciting causes of disease in most northern countries: long continuance of moist weather accompanied by cold; extreme cold when long continued; great and sudden alternations of heat and cold; an *atmosphere surcharged with carbon*; *scantiness of woollen clothing*; and I am perfectly willing to conclude with Dr. Hazeltine, that paucity of diet may very possibly operate as a predisposing

cause, though with us this circumstance has never been suspected of having much agency in the matter."

I am sensible that gentlemen have a right to expect of me a full exposition of the facts and arguments on which the above opinions are founded; and I hold myself responsible, if required, to make these matters the subject of another paper.

In Dr. Mann's first essay, New York Herald, March 23d, he says, "We shall further notice the case of a lady now in this town, who the past summer knowingly took a dose of spurred rye, which in less than half an hour produced violent vomitings, accompanied with strong spasms, or cramps in the stomach and bowels, succeeded by profuse cold sweats, which nearly exhausted the vital principal; from which with difficulty she recovered.

"Since my first communication, it has been stated to me by a gentleman from the county of Worcester, that a dose of spurred rye administered to his wife, occasioned excessive vomitings and spasms, which endangered her life."

Does Dr. Mann need to be told that an excessive dose of any active emetic substance will produce precisely similar effects to those he has described.

Surely he cannot be ignorant that the parliament of Paris, so late as near the middle of the seventeenth century, in a formal and solemn manner proscribed the use of tartarized antimony; for the same reason that he would discountenance the giving of ergot.

It is presumable that in the cases last recited the dose of medicine was too great, or the patients' stomachs not in a fit situation to receive it. And what practitioner is there who has not encountered temporary disappointments, in what would seem to be well contrived plans of cure, from like circumstances?

Had Solomon when he wrote "there is a time for all things," had the science of medicine in his mind, he would have added "*and a dose*" also.

There has not at any time been an active substance introduced as an article of medicine but it has excited violent opposition.

Much may be said concerning the exhibition of ergot as an article of the materia medica. I have had very considerable opportunities for observing its effects when administered in cases of lingering parturition; and likewise as an emmenagogue. And

neither from my own experience, nor from the observations of many able and ingenious physicians, communicated to me and now in my possession, have I been able to learn any thing unfavorable to its use ; but have abundant proofs of its efficacy and perfect safety.

Ergot seems to possess the property of specifically affecting the uterus ; producing regular, strong and healthy action of that organ.

This paper has extended to a much greater length than what was at first contemplated : but I must beg your indulgence for narrating a very few plain and pertinent cases.*

In the month of May 1813, I was desired to visit a young woman, Sophia Barns, of Moira. Her age wanted but a few weeks of sixteen years. She had never menstruated, but had regularly once in four weeks a turn of vicarious hæmoptysis. Her countenance was sallow—there was much œdema of her face, abdomen and lower extremities—she was greatly debilitated ; even slight exercise brought on severe paroxysms of quick and laborious breathing—her appetite was small, her pulse frequent, quick and sharp.

She had tried various remedies ; had been several times bled ; took active cathartics, different preparations of iron, steel, aloetic pills with soap and rhubarb, tincture of melam podium, of cantharides, &c. &c.

I drew about eight ounces of blood from her arm, gave her a cathartic, and put her upon the use of a saturated tincture of ergot, twenty drops three times a day. She took no other medicine.

Her appetite and strength improved, and at the end of three weeks from the time of commencing the use of spurred rye, Miss B. had a pretty copious though strictly proper catamenial discharge. She continued to use the tincture as at first until a second menstrual evacuation took place. Her health then appeared to be perfectly restored ; and has continued uniformly good to the present time.

* The cases of the use of ergot in promoting parturition are similar to others formerly noticed in this Journal, and have therefore been omitted.

A SINGULAR CASE OF PUERPERAL CONVULSIONS, SUCCESSFULLY TREATED WITH THE ERGOT.

BY DOCT. HENRY S. WATERHOUSE.

[Communicated by John Stearns, M. D. of Albany, for the New-England Journal of Medicine, &c.]

As the operation of the Ergot upon the human system has recently excited much enquiry and some collision of opinion, it would be highly useful for every practitioner to collect for publication such facts as may correctly define its real qualities. It is with that view that I now communicate the following case.

JOHN STEARNS.

Extract of a Letter from Dr. Henry S. Waterhouse to John Stearns, M. D. dated, Malone, Franklin County, 5th Sept, 1845.

“FROM reading your letter to Mr. S. Akerly published in the Medical Repository, vol. xi. and from information received from my medical friends at the eastward, I have been induced for four years past to make trial of the Ergot in lingering and tedious cases of parturition, and in every case its exhibition has been attended with manifest advantage.

In every instance where I have made trial of it, I have been extremely cautious to ascertain by careful examination that the labour was delayed only from want of regular and forcible parturient pains. The following curious and to me perfectly unexpected effects of the Ergot, I think would be interesting to the medical faculty in general.

Mrs. L—— H——, of this town, of nervous temperament and rather delicate habit, aged 19, was on the 24th of June, 1844, seized with the usual precursory symptoms of parturition. I found her with wandering pains of the back and abdomen, some throbbing pain of the head, and a tense pulse, though natural as to frequency. The loss of 15 ounces of blood, fomentations with bitter herbs to the abdomen and a proper dose of opium gradually gave her relief, and at evening she fell into a quiet and refreshing sleep. The next morning at 9 o'clock a messenger came for me, in the utmost haste, who declared that Mrs. H. was certainly dying. I saw her in a short time, and on enquiry

ing, learned that she had passed the night in a pretty quiet state for one in her situation, and that between 7 and 8 o'clock in the morning, some degree of mental derangement was, for the first time, discovered by her attendants. She complained of wandering pains in her abdomen, and the same throbbing sensation in her head. These symptoms increased till muscular spasms of the most violent kind were brought on. She was now labouring under the most horrid form of puerperal convulsions that I ever witnessed. She was constantly talking and muttering over things in a perfectly disconnected and incoherent manner—her eyes were rolling from side to side and turning up in their sockets—she had so frequently bitten her tongue that blood was running in considerable quantities from her mouth; her extremities were of a deadly coldness, and the spasmodic contractions of the muscles of her limbs, back, abdomen, neck and lower jaw were truly alarming. The only difference from health discoverable in her pulse was that they were somewhat diminished in frequency. After several fruitless efforts we at length succeeded in placing her lower extremities in warm water, and after making several abortive trials, I finally got her to swallow a large quantity of Tinct. Assæ foetid. with Tinct. Opii, her abdomen was wrapped round with flannels wrung out of a decoction of bitter herbs, her extremities were smartly embrocated with stimulating substances, &c. &c. But all to no purpose. There was no flooding, but from the situation of my patient it was impossible to make that accurate examination *per vaginam* which I could have wished. I could however ascertain that the *Os Uteri* was in a small degree dilated. Circumstances were such that I could not with safety to my patient (as her general strength was rapidly wasting) defer the use of means till I could procure the medical aid of some of my neighbouring practitioners. Her pulse had become small and much more frequent, her breathing was laborious and her countenance ghastly. The Ergot presented itself to my mind as the only probable means of saving her life. I mixed about thirty grains in a small quantity of warm water and gradually insinuated a table spoon between her teeth, worked the medicine into her mouth and in two or three minutes she had swallowed it. The effects were almost instantaneous and truly astonishing—her spasm gave way, the opera-

tions of her mind became regular and she awoke as she supposed from a fatiguing, disturbed and painful state of sleep. She complained of much weariness and soreness. A strong cup of tea was given her, together with some light nourishment, and she soon fell into a quiet sleep. In the evening following, true and forcible labour pains came on, and I delivered her in a short time without the occurrence of any remarkable circumstance."

CASE OF MALFORMATION.

BY DR. DAVID ALEX. TELFAIR.

[For the New-England Journal of Medicine, &c.]

ON the 13th July last I was called to Mrs. Mc Gowns of this vicinity, aged about 35 years (having had eight healthy and well formed children) to assist her in parturition, the account given me by the midwife was, that she had been in labour with very strong but ineffectual throes about 12 hours, that then the waters broke and a foot presented very much deformed; this circumstance having never before occurred to her, although a person of considerable experience in her line of business, alarmed her so much, that she recommended my being sent for, when I found her in the following situation. But previous to describing which, it may be proper to give the form of the child or monster, as it may tend to account for the difficulties attending the delivery.

The foetuses as they may be called, since nature attempted the formation of two, are about one and a half feet long; the heads, which were two with their necks, shoulders, and arms, are united (entire and well formed) nearly on a line with the ensiform cartilage, thence becoming a single body and having the appearance of being natural, except the size being that of two full grown foetuses, the abdominal viscera terminated in a natural anus, but which was turned very much inward, for the purpose of receiving a central thigh, which seemed to have its attachment in the articulation of the os. coccygis, so as to form a right angle with the other legs, which were in their natural positions. The supernumerary member was well formed until it arrived within an inch of the ancle, when it became abruptly bent interiorly, termi-

nating in a club foot with six small toes in their usual positions, with a double one on the centre of the instep rather towards their insertion. The sex female, and weight about 15lb. With respect to its situation in utero, it lay on its abdomen with the central leg presenting, the other two retorted and lying on the scapula, so as nearly to bring the umbilicus to present, which it ultimately did, and in that way was delivered. The heads, (very large) were high up in the womb; on the right and left anteriorly two of the arms lay between them, one of the others on the breast, and the last inclined towards the leg that presented. From what I can collect from the mother and from appearances, she was in her eighth month, her pelvis quite small but well formed, had been generally indisposed in the pregnancy and was of the melancholic temperament.

Taking into view the preternatural state of things, and feeling all that solicitude for my patient which humanity and the doubtfulness of the event prompted, it was sometime before I could determine upon a plan most proper to pursue. Believing her to be in the most perilous state, and convinced she could not survive but a few hours if she was not disburthened, as from the extreme distention of the uterus (from the preternatural size of its contents) serious apprehensions were entertained of its rupturing; it was indeed so completely gorged as to preclude the possibility of insinuating three of the fingers, even after the most powerful relaxants and lubricants had been used; this being the case, and continually urged to do something for her, and being satisfied of the death of the child from the tenderness of the cuticle, I came to the determination of delivery, although but a forlorn hope. I felt there was no alternative. Having read how far the lancet may be carried, and experienced its good effects moderately used in tedious parturition, and hoping similar ones would result in this case if used to a proper extent, I proceeded (after advising her friends of her extreme danger) by abstracting blood ad deliquium from the arm, I cannot precisely say how much, but sufficient to endure that degree of relaxation which facilitated the introduction of my hand, so that I could operate in diminishing the bulk of the fœtus by taking off the central limb and extracting the bowels, without which I am persuaded the woman must have been lost: the consequence of which exceeded my most sanguine expectations. The parts had become

now so dilated, that I could pass my hand round the body, but the heads were still so high and wedged that it was impracticable to turn—then feeling for the legs, with great care I drew them down, the bones of which were so flexible that they bent double. Drawing still with considerable force, the navel appeared and then the remainder of the body (the uterus having now the power of contraction from the vacuum that was furnished) was expelled with very little difficulty, the placenta with a double cord following immediately. Such had been the loss of blood from the arm and uterus, that syncope now took place to a very alarming degree, and it was with the greatest difficulty, with frictions and cordials, she was restored. It may be proper to add, that opium was occasionally combined with the lancet in such doses as to co-operate with the debilitating effects thereof, and with evident advantage, particularly when the pains did not approach regularly and there was any hæmorrhage. This is the 15th day of her delivery, and except a great degree of debility which must necessarily happen, she exhibits a promising prospect of recovery.

Weight of child 15lb.

2 Heads,

4 Superior extremities,

3 Inferior do.

7 Toes on club foot.

Greenville, North Carolina, April, 1816.

SOME ACCOUNT OF THE GRAND MONADNOCK.

BY J. FREEMAN DANA, A. B.

Member of the New-England Linnæan Society.

[For the New England Journal of Medicine, &c.]

THE branches of the Merrimack and Connecticut rivers are separated by a lofty ridge of mountains called the height of land, in which is situated the Grand Monadnock, about twenty-two miles east of Connecticut river, and ten north of the southern boundary of the State of New-Hampshire, in the towns of Jeffrey and Dublin. The direction of the ridge is N. E. and S. W.

the mountain is five miles long from N. to S. and three from E. to W. The country around it is formed of Mica Slate, (common,) very large hills and mountains of which run through Peterborough, New-Ipswich, &c. A large proportion of sulphuret of iron occurs in this rock, in a state of decomposition, the rock falling into pieces; a few grains of it in this state when diffused in four or five cubic inches of water will exhibit strongly the characteristics of iron on the addition of the triple prussiate of potash, or tincture of galls.

The summit of the mountain, when seen at the distance of four or five miles, appears rounded and destitute of those high cliffs and mural precipices belonging to granitic mountains. The mountain is composed of the *Talc mica Slate*, distinctly stratified; the strata are from one foot to three feet in thickness, and dip towards the north at an angle of about 30° ; garnets in large quantities are imbedded in the rock, and the mountain is traversed by veins of compact black schorl, which is always accompanied with white quartz running north and south; the schorl often forms the face of precipices. From the vertical position of the strata, it is inferred that where any rock breaks out at the surface, they continue the same through the whole mountain in the direction of a perpendicular plane; wherever I had an opportunity to trace the strata or veins they continued the same.

Feldspar, in large crystals sometimes occur in this rock; where the crystals are exposed to the atmosphere they are decomposed.

Schorl occurs in crystals, very large, disseminated, and in masses composed of small crystals aggregated.

Quartz, occurs in large masses, and the surface of it which has been exposed to the action of the atmosphere has acquired the lustre and appearance of enamel, and totally different from a fresh fracture.

Plumbago, is found in considerable quantities on the north side of the mountain; it has not yet been applied to any useful purpose, but might be employed in civil and domestic economy.

A small stream of water rises near the summit of the mountain, and dividing, runs down on the north and south sides. The prospect from the pinnacle is very extensive; thirty ponds of fresh water, some of which are so large as to contain islands of

eight or ten acres, may be seen from it, in the immediate vicinity.

The mineral which constitutes this mountain shews it to be among the primitive rocks, and hence we may know what credit to attach to the reports that volcanic phenomena have been observed on this mountain, and that the rocks in some places bear the marks of having been heated, and calcined; on attentive examination not the slightest trace of a volcano could be discovered, nor can we conjecture on what these reports were founded; some specimens of massive schorl, which occur there might be mistaken for scorix by the ignorant.

The height of the Monadnock was ascertained in 1780, by James Winthrop, Esq. of Cambridge, by Barometrical admeasurement and the corresponding heights in Martin's Philos. Britannica; difference of temperature was not regarded, and the barometer was filled for each observation. Many improvements have been introduced into this mode of determining altitudes since that time, and it was therefore judged proper to repeat the observations, making necessary correction for temperature. The instruments used were the improved mountain barometer of Sir H. C. Inglesfield, corrected by the standard barometer of the University, and a best mercurial thermometer by Jones. The observations were made on the 21st of May, on the north side of the mountain.

9 o'clock 30' A. M.	{ at the base, (a) Barom.	28,894
	Thermom.	68° Faht.
2 P. M.	{ Top Barometer	26,868
	Thermometer	56° F.
2 P. M. the Barometer at the University by		
Professor Farrar,		29,990
Thermometer		57° F.

From these data, by the formula given in Taylor's logarithms, which is the mean of Shuckburgh's and Gen. Roy's, the height above the level of the sea is 3450 feet, and above the base, 1997.5.

Near the base of the mountain is the "Monadnock Mineral Spring;" it issues near a small stream of fresh water, and

(a) Judge Winthrop's observations were on the same side of the mountain,
 Barometer, Bottom 28,4
 Top 26,4

yields 14 quarts per minute; I found its temperature 58° Faht. and it has been known to freeze. The channels, &c. through which the water has been running for several years, are covered with a coat of red oxide of iron and the water is slightly chalybeate to the base. The following experiments were made on the water at the fountain head.

Experiment 1. To a portion of water immediately from the spring, a few drops of the infusion of litmus were added; but no change of colour could be perceived.

Exp. 2. To a like portion of water which had been boiled, infusion of litmus was added in the same proportion, on comparison no shade of difference was perceptible between it and that used in the first experiment.

Exp. 3. Oxalate of ammonia or solution of pure barytes when added to this water produced no change.

Exp. 4. Solution of sub-acetate of lead, when added to water produced a blueish coloured precipitate, which instantly became white and opaque. On the addition of a few drops of nitric acid, the precipitate was re-dissolved.

Exp. 5. Solution of muriate of barytes produced a slight precipitate which was immediately dissolved by nitric acid.

Exp. 6. Crystals of ferruretted chyazate of potass (triple prussiate) were dissolved in pure distilled water, and a few drops of the solution were added to the spring water but no change ensued.

Exp. 7. Tincture of galls when added to the water produced no change, but on suffering them to stand in contact a few days a slight brownish colour was produced.

Exp. 8. Soap dissolved in alcohol was not decomposed when added to this water, and agitation instantly presented the phenomena of *soft* waters.

From these experiments we infer that the water of this spring holds in solution a minute quantity of carbonate of iron, but the proportion so small as scarcely to entitle it to the appellation of a *Mineral water*.

After having stated the above facts respecting the mountain and its vicinity, it may not be uninteresting to give a general view of the geology of the country over which we passed, between Boston and the Monadnock; with a more particular description of the individual specimens we found, together with their localities.

Clay-slate and greenstone occur in Cambridge forming those hills famous in the revolution for the encampment of the American armies, their direction is N. and S. near them is found bog iron ore.

Greenstone forms ranges of hills in Woburn, West-Cambridge, Waltham, Watertown and Weston. At Woburn *Gneiss* occurs, and is traversed by a considerable vein of copper pyrites accompanied with iron. At Concord, greenstone occurs, and a large vein of sulphuret of iron in a decomposing state is found in it; veins of carb. lime traverse the greenstone at this place; lime stone is found in large quantities at Bedford, and is employed in the arts. Bog ore of iron is found at Concord. Mica slate is found at Acton and Littleton; and at Westford fine scaly soft talc. *Clay-slate* again appears at Groton, and this formation continues through the towns of Pepperell and Hollis to Amherst, N. H. where an alluvial deposit is found. Bog ore of iron is found at Groton and has been wrought. Large masses of granite are frequently found in these towns but no mountain masses. Mica slate forms the remainder of the country from the vicinity of Groton to the summit of the Monadnock. A large granite hill is found in New Ipswich, but whether it is a mountain mass is questionable; we had no opportunity to examine it satisfactorily.

We found the following minerals which we present to the Society.

Quartz, colourless and transparent; smoky, in the granite hill New Ipswich, *Monadnock*—white semitransparent and reddish, *Monadnock*.

Beryl, a large six sided crystal. New Ipswich.

Feldspar, common, white, in large crystals—Mk.—New Ipswich—Amherst N. H. reddish—Mk.—

Disintegrated, forming the porcelain earth, (abundant) N. Ipswich, Mica, massive, greenish white passing to white, pseudo metallic lustre, New Ipswich—greenish—Mk.

Schorl, Black, massive, compact, and in masses composed of small acicular, parallel and diverging crystals—Mk—N. Ipswich, crystalized and imbedded—Mk.

Garnet, common, imbedded in mica Slate—Mk.—in granite—Wilton N. H. Iron, Magnetic ore, crystallized rhomboidal dodecahedron, imbedded in granite, or disseminated in veins of feldspar traversing granite, Amherst N. H.

Bog ore, earthy—Groton—in masses with a resinous fracture, Groton and Concord. The iron manufactured from this ore obtains through the country the name of Groton iron, it is in fact the hot-short iron, not capable of being welded under common circumstances; the smiths observe that a peculiar odour arises from it when heated, and hence probably it contains arsenic, which has been imagined to be the cause of this peculiarity in iron. I have not had opportunity to examine it more minutely.

Plumbago—North side of the Monadnock.

I am under many obligations to my brother Mr. S. L. Dana, F. L. S. N. E. and to Wm. White, Esq. of Watertown, who accompanied me, for much assistance in collecting the above facts and observations—and if this account shall make known any new fact to the society, or shall lead more able members to communicate the result of their observations, it will have attained its highest object.

Cambridge, June 8, 1816.

APPENDIX.

[For the New-England Journal of Medicine, &c.]

A knowledge of the relative heights and position of hills, the direction of the strata and rocks of which they are composed, are very essential towards forming a geological history of our country. The heights may be ascertained with sufficient accuracy by barometrical admeasurement; many persons who are possessed of a barometer entertain an erroneous idea that the method of determining altitudes by it is very laborious and difficult, but the rules for effecting this are abundantly simple; it is not necessary for one to know that when the heights form an arithmetical progression the corresponding densities of the air are in a geometrical progression, &c. or even the principle on which the instrument is constructed; the mariner easily determines his latitude without a knowledge of astronomy, and the carpenter ignorant of geometry often squares his work by a practical application of Euclid's 47th Proposition. Our common books do not contain formula for determining altitudes by the barometer, and I have therefore subjoined the following rules.

For the purpose of computing on the spot, and very near the truth, any observations, the following short table and method of using it by Sir H. C. Englefield will be found very convenient. It expresses the value of the difference of the tenth of an inch in the height of the mercury at the temperature of freezing water, in English feet.

TABLE.

Inches	Feet	Inches	Feet	Inches	Feet	Inches	Feet
20,05	130	22,25	117	25,05	104	28,55	92
,20	129	,45	116	,30	103	,65	91
,35	128	,65	115	,55	102	,95	90
,50	127	,85	114	,80	101	29,27	89
,66	126	23,05	113	26,05	100	,61	88
,82	125	,25	112	,30	99	,95	87
21,00	124	,45	111	,57	98	30,30	86
,18	123	,65	110	,85	97	,65	85
,35	122	,87	109	27,15	96	31,00	84
,53	121	24,10	108	,45	95	,37	83
,70	120	,32	107	,75	94	,75	82
,87	119	,55	106	28,05	93	32,10	81
22,05	118	,80	105				

The method of determining altitudes by the help of this table is as follows : 1st. Add the two observed heights of the Barometer together and halve the sum to obtain the mean height. 2d. Subtract the lesser height from the greater, the remainder is of course the difference of heights in tenths, &c. of an inch. 3d. Enter the table with the mean height, and take out the feet answering to it making a proportion if the mean height does not answer exactly to a foot. 4th. Multiply the number thus obtained by the tenths, &c. of an inch of the difference of height of mercury in the Barometer tube, and the result will be *nearly* the same number of feet answering to the difference of height between the two barometers *at the temperature of freezing water*.

For the purpose of immediate computation, the correction of the heights thus obtained for temperature, is made by the following rule of Sir H. C. Englefield. For every four degrees that the mean temperature of the two detached thermometers exceeds 32° of Fahr. add one hundredth of the approximate height before obtained, to it ; for every 40° one tenth, and so for any greater or less number of degrees.

BAROMETRICAL OBSERVATIONS.

For more rigid calculation the Logarithmic method may be used. The altitudes of the Barometer at the two stations, with

the heights of Fahts. Thermometer attached to the Barometer, and the heights of two Thermometers of the same kind, exposed to the air but sheltered from the sun at the two stations, being given, to find the perpendicular altitude of one station above the other.

Put B for the observed height of the Barometer at the lower station, and b for that at the upper station, D for the difference of the heights of Fahts. thermometer attached to the barometer at the two stations, and F for the mean height of Fahts. thermometer exposed freely in the shade at the two stations; the altitude of the upper above the lower, will be expressed as follows in English fathoms, according to the mean of the observations of Gen. Roy, and Sir George Shuckburgh, in which the upper sign $-$ is used when the attached thermometer is highest at the lower station, and the lower sign $+$ when it is lowest at the lower station.

$$\underline{L. B - L. b \mp 0,454D \mp \mid \mid - F - 32^{\circ} \mp 0,00244}$$

i. e. Take the difference of the tabular log's of the observed heights of the barometer at the two stations, considering the four first figures exclusive of the index as whole numbers, and the remaining figures to the right as decimals, and subtract or add $\frac{454}{1000}$ of the difference of the altitude of Fahts. thermometer (attached) at the two stations, according as it was highest at the lower or upper station; thus you will have the height of the upper above the lower station in English fathoms nearly, to be corrected as follows: Multiply the height found nearly, by the difference between the mean of the two altitudes of Fahts. detached thermometer at the two stations and thirty-two, and by the decimal fraction 0,00244, the product will be the correction of the approximate height, which added to, or subtracted from the same, according as the mean heights of the two altitudes of Fahts. thermometer, exposed to the air was higher or lower than 32° will give the true height of the upper station above the lower in English fathoms; and easily reduced to feet.

[From the London Medical Repository.]

RETROSPECT OF THE PROGRESS OF MEDICAL SCIENCE.

Anatomy, Physiology, and Pathology.

So much has been accomplished in perfecting what may be regarded as the pure Anatomy of the human body, that any novelty in this important branch of Medical Science is more likely to be confined to new arrangements, than to consist of any addition to the materials already accumulated. Under this head, therefore, we have little to notice. Mr. Alexander Walker, in a sketch of an attempt to systematize ANATOMY, Physiology, and Pathology ;* proposes to divide Anatomy into three distinct parts: the 1st, to embrace the consideration of the mechanical or loco-motive organs, comprising the bones, ligaments, and muscles: the 2d, the vital organs, under which term he classes the absorbing organs, both surfaces and vessels; the organs of circulation; the glands and secreting organs; and those of nutrition, respiration and generation: and the 3d, the intellectual organs, comprehending the organs of sense where impressions are made; the cerebrum where these excite ideas; and the cerebellum whence he conceives volition to result. Physiology, he proposes also to arrange in a similar manner, by merely substituting the term *function* for that of *organ*: thus making three *orders* both of organs and functions; the loco-motive, the vital, and the intellectual; each of which would contain three *genera*; namely, "of the first, or loco-motive, those organs and functions which support, connect, and move; of the second, or vital, those which absorb, circulate, and secrete; and of the last, or intellectual, those which feel, think, and will."

This arrangement, as far as we have stated it, would certainly facilitate the study of Anatomy and Physiology; but when the author of it extends the principle to pathological arrangement also, substituting the term *diseased functions* for that of *functions*,

* Vide *Annals of Philosophy*, vol. vi. p. 283.

we are of opinion the generalization is carried beyond its proper limit.

Another addition to our elementary treatises on the subject now before us has been made by Dr. John Gordon, who has just published the first volume of "a System of Human Anatomy."* This work is intended to be divided into eight parts,

* *A System of Human Anatomy.* By John Gordon, M. D. F. R. S. E. Lecturer on Anatomy and Surgery, and on the Institutions of Medicine; Member of the Royal College of Surgeons of Edinburgh; and one of the Surgeons to the Royal Infirmary. vol. i. 8vo. pp. 261. Edin. 1815. As we shall take an early opportunity of laying a review of this work before our readers, we do not at present enter into any detailed account of its contents: but we feel disposed to make the following extract regarding the *rete mucosum*; because it agrees with our own opinion, and is in itself interesting.

"In the Negro, Caffre, and Malay, I have satisfied myself by many dissections, that there is a *black membrane* interposed between the epidermis and the true skin, upon which the dark colour of these people entirely depends; and hence I have no doubt, that the colour of black men in general is owing to a similar substance. This membrane sometimes peels off with the cuticle, and sometimes adheres to the true skin. It is more tender than the cuticle, and thinner; but like it, perfectly inorganized, and without any appearance of holes, or plates, or fibres. § But, after the strictest examination, I have not been able to find any light coloured *Rete Mucosum*, corresponding to this black one, in the inhabitants of Great Britain, nor in those of other nations resembling them in colour. I have tried all the means usually said to be necessary for discovering it, and many others besides, but always without success: I am therefore, disposed to deny the existence of any such membrane in white persons. The greater number of anatomical writers seem to have copied the description of it, one from another; and I have little doubt, that those who conceived they had actually seen it, had seen only the cuticle, from which they had previously peeled off some superficial layers. The colour of the skin in white people depends, partly on the cuticle, but chiefly on the true skin, as already remarked. (p. 236.) Whether this be the case, also, in the tawny varieties of the human species, or whether they have not a tawney membrane, like the black membrane of the Negro, I have had no opportunity of ascertaining."

§ "MECKEL's description of this membrane is the most minute, and the most accurate, I have met with. (*Hist. de l'Acad. Roy. de Berlin* 1753.)

"This author takes notice of a fact, which I have had many opportunities of observing; viz. that the cicatrices of wounds, and the marks of the small pox, or of ulcers of any kind in black people, so far from remaining white, as many have asserted, uniformly become blacker than the other parts of the skin."

which will embrace all that can be required to be known of the structure of the human body ; but two only of these are contained in the present volume. The first treat "of the external form, stature, and weight of the human body ;" the second "of the Anatomy in general of the common systems and common textures." The subject is discussed in a more full and philosophical manner than in any of the preceding systems which have appeared in this country ; the descriptions of the visible structure and relative situations of the various parts are not only extremely minute and accurate ; but, the chemical components and properties of each are also detailed ; and several other points of considerable interest, such as the comparative bulk, weight, and organization of the parts in the foetal and the adult state, are brought into view. These circumstances certainly render this system more interesting to the already-formed anatomist ; but we are, at the same time, apprehensive that they rather tend to diminish its utility as an elementary treatise. The multiplicity of the objects, and the minuteness of the examination which is entered into of all their parts and qualities, contribute to perplex the novice, whose mind is yet prepared for generals only ; whilst, even in the very commencement, from the nature of the arrangement, subjects are anticipated, and a degree of knowledge presupposed, which is altogether incompatible with the object of a work intended for the instruction of the uninformed.

If pure Anatomy affords little scope for novelty to the inquirer, the wide field of **PHYSIOLOGY** presents yet many untrodden paths. Within the period embraced by this Retrospect, the investigations to develop the functions of animal œconomy have not been very numerous ; but they have been of considerable interest, and have nearly rendered intelligible some of the most apparently complex phenomena of the living machine.

From a number of well-conceived and ingeniously conducted experiments, made on the bones of the human foetus at different periods of its growth, and on those of young quadrupeds, of the cetacea, and of birds, Mr. Howship has been enabled to draw the following conclusions as to the means employed by the animal œconomy in the process of ossification.* " 1. That in

* Vide *Transactions of the Medico-Chirurgical Society*, vol. vi. p. 263. This paper was read before the Society on the 14th of February last ; and

the mammalia, the first rudiments of ossification in the long bones are the effect of a secreting power in the arteries, upon the internal surface of the periosteum, which produce a portion of a hollow cylinder ;” and this is antecedent to the evolution of any cartilaginous structure. “ 2. At a certain stage of the process, however, a cartilage is formed, which by the nature of its organization, and by admitting of a specific provision of cavities and canals lined with vascular membranes, which secrete an abundant store of gelatinous matter, is adapted to this particular purpose ;” and by conducting the ossification within itself, serves to determine the figure of the extremities of the future bone. 3. That cartilage may be defined—“an even and finely granulated albuminous matter,* deposited in the interstitial spaces of an exceedingly elastic bed of a semi-transparent reticulated structure, which is apparently a modification of gelatin. 4. That from the period when the ossification proceeds by the medium of the cartilage, the process is uniform until the growth of the bone be completed. The epiphyses are formed and attached to the bones by the same means. 5. That the ossific matter in the cylindrical bones is deposited primarily in the form of fine thin tubular plates : a mode of deposition of all others the most favourable for their being subsequently remodelled, and facilitating all changes of structure. 6. That while the phosphate of lime is provided by the capillary arteries between the cartilage and bone, the mechanical pressure of the fluid secretions within the medullary cavities of bone, operating in different directions, according to the particular determination given by the circulation, is the chief agent in extending the cylinder, and affecting the subsequent changes of structure. 7. That the mode of circulation most favourable for ossification,

is illustrated by coloured microscopic figures, the execution of which is equally creditable to the author and the Society under whose auspices they are presented to the public.

* Mr. Hatchett (*Phil. Trans.* 1799) had ascertained that the soft flexible part of bone which remains after the phosphate and carbonate of lime have been separated, resembles coagulated albumen in most of its chemical properties ; and hence Dr. Gordon proposes to nominate it the *albuminous part of the bone*, instead of *cartilage*. Its quantity on an average is from 35 to 40 per cent of the whole bone analysed.—*System of Human Anatomy*, vol. i. p. 254.

is a very slow and uniform motion of the blood through the capillary system; for securing which, a provision is made in the inflexions of minute arteries, the rectangular mode in which the smaller branches are given off, and some other circumstances. 8. That in the formation of the cylindrical bones, the ossific surface is arranged into tubular plates of two different sizes, constituting a larger and a smaller series; an arrangement by no means essential to the increase of a bone; because in many of the early stages of ossification, and also where the growth is slow, the larger series is found to be entirely wanting. 9. That the only apparent use of the larger series of tubes, is that of augmenting the quantity of blood circulating through the ossifying structure, so as to increase the rapidity of growth. 10. That in the growth of the cylindrical bones, and of those flat bones that are formed upon cartilage, the deposit of the ossific secretion is in the first instance made around the external openings of the smaller series of tubes,* and upon these only. 11. That in the flat bones of the skull, the circumstances under which ossification takes place differ materially from those above described. In these the phosphate of lime, in combination with the animal mucilage, is occasionally deposited in small detached unequal masses, without regularity, as if merely laid in the way, preparatory to their subsequent application; that these soon become connected with the more central parts of the bone, and are found to decrease in thickness, as they increase in breadth, until they are finally consolidated with the original plate of bone. 12. That the particular simplicity observable in the mode of production of the bones of the skull, affords a strong argument in favour of the opinion, that pressure, variously modified, con-

* The nature of these tubes is thus explained:—" *Examination* 5. Sections from the cartilage of the lower end of a thigh bone of a child at birth were next laid in the field of the microscope. A great number of tubular canals were found, many of which terminated immediately under the surface of ossification. Each canal was filled with a peculiar colourless glairy or mucilaginous fluid.

"The edge of the newly formed bone, examined with a strong magnifying power, exhibited an appearance of small, short pointed villi, shooting forwards from the surface of the bone into the substance of the cartilage. These villi were only sufficiently opaque to be just visible when a strong light was cast upon them."—*Medico Chirurg. Trans.* vol. vi. p. 266.

stitutes one of the most efficient instruments in the hand of Nature: for in this instance the uniform, though gentle, pressure from the impulse of the circulation, and the constantly increasing volume of contents in the head, must be admitted to be the sole agents in completing that process. 13. That the ultimate texture of bone is not laminated, but reticulated; the phosphate of lime being deposited as an interstitial substance.

As several of these conclusions are perfectly original, the mind is backward from admitting them on the evidence of the few experiments that have been made; but from the specimen which Mr. Howship has afforded of his talents for contriving and conducting minute experiments, we have no doubt his further prosecution of the subject will render them completely satisfactory.

In some degree analogous to the labours of Mr. Howship, is the investigation of Professor Carlisle into the connexion between *vascular and extra-vascular parts*.* He regards "those parts of organic bodies, which have no power of self-repair, which hold no continuity with the circulating fluid material destined to replenish the waste, to augment the bulk, or repair the accidents of the living fabric," as extra-vital; and instances, as the best example of the union between vital and extra-vital parts, the shells of testaceous animals which are completely extra-vascular. They are first produced by a substance thrown out from the surface of the animal, and are augmented and have their injuries repaired by the same means; nothing being thrown out by the ready-formed shell, as is the case in bones and other vascular parts. Thus in experiments which the Professor made upon the garden snail, (*helix nemoralis*) he found that "by fracturing and breaking away the shell in various parts," the repairs are "effected from within by first smearing over an epidermoid varnish, and then by plastering the inner surface of that film with successive calcareous lamina." He, also, ascertained that even in their softest state, shells, including those of birds' eggs, with their albuminous membranes, do not possess vessels, and cannot be injected from the vascular parts of the bodies of the recent animals.

We look with impatience for the promised continuation of this inquiry.

* Vide *Repository*, vol. iv. p. 89.

Notwithstanding all that has been written regarding the reciprocal influence of the *nerves* and *sanguiferous systems* upon each other, the subject is still involved in considerable obscurity. *M. le Gallois* had asserted that the action of the heart and circulating organs depends altogether on the spinal marrow, from which they receive their nerves : but some recent experiments of British physiologists make this opinion doubtful. By a very extensive series of experiments, Dr. A. P. Wilson Phillip in particular has endeavoured to settle the question, how far the action of the heart is influenced by, or depends on, nervous energy.* These experiments were performed chiefly on rabbits, who were rendered insensible by a blow on the occiput, and the circulation supported by artificial respiration ; the brain and spinal marrow being laid bare and stimulated, or destroyed by a hot wire, or removed, according to the object to be ascertained by any particular experiment.

In eleven experiments the brain and spinal marrow were totally destroyed, yet the action of the heart continued unaffected for a considerable time ; and when it became languid, was renewed and kept up by artificial breathing, and florid blood produced. Notwithstanding, however these proofs of the independence of the sanguiferous system on the nervous, other experiments were equally demonstrative that the application of chemical stimuli† to the brain and spinal marrow greatly increases the action of the heart ; and this occurred whether the application was made to the anterior or posterior portion of the brain, or to the cervical or lumbar portions of the spinal marrow. This apparent contradiction is explained by admitting the conclusion of Haller, “ that the heart and other muscles possess an excitability independent of the nervous system, and at the same time that they are all equally capable of being stimulated through this system.”

* *Experiments made with a view to ascertain the principle on which the action of the heart depends, and the relation which subsists between that organ and the nervous system.* By A. A. Wilson Phillip, Physician in Worcester. *Phil. Trans.* Part. i. 1815. p. 65.

† When opium and tobacco were employed, the stimulant effect of both “ was soon succeeded by a more languid action of the heart than that which preceded their application to the brain.”

Dr. Phillip further proves, that, although the spinal marrow, as *M. le Gallois* has demonstrated, is capable of performing its functions independently of the brain, yet it may be influenced through the brain. "Thus," says Dr. Phillip, "the excitability of the spinal marrow bears the same relation to the brain which that of the muscles bears to the spinal marrow and its nerves; and I would add all nerves distributed to muscles, some of which arise from the brain, but seem to bear precisely the same relation to the sensorium with those which arise from the spinal marrow."* The sensorial functions only are lost by the removal of the brain. The nervous, then, obeys the sensorial system, in the same way in which the muscular obeys the nervous system; but as the muscular system has an existence independent of the nervous, so has the nervous independent of the sensorial system." There is every reason for believing that the peristaltic motion of the abdominal viscera obeys the same laws as the action of the heart; as this motion continues until the parts become cold after the brain and spinal marrow are removed.

The following are the conclusions Dr. Phillip draws from his experiments :—1. That the muscles of involuntary motion obey the same laws with those of voluntary motion. 2. That the apparent difference in the nature of these muscles arises from their being under the influence of different stimuli 3. That they are both capable of being stimulated through the nervous system. 4. That the power of both is independent of the nervous system. 5. That what is called the nervous system consists of two parts, whose existence is not immediately dependent on each other; the one performing the sensorial functions, the other conveying impressions to and from the sensorium, and without bestowing any power on the muscular system acting as a stimulus to it. 6. That there is, therefore, in the

* The following illustration is given by Dr. Phillip. "In the lowest animals we find only the muscular system, which exists without either the nervous system or the sensorium. In the next class we find the muscular and nervous systems, which exist without sensorium. In the most perfect animals we find the three vital powers combined, each having an existence not immediately depending on the others, but all so connected, that none can exist long without the others."

most perfect animals, a combination of three distinct vital powers, not immediately depending on each other; one of the muscular system, one of the nervous system properly so called, and one of the sensorial system. 7. That the muscular system, though independent of the nervous system, is so influenced by it, that the power of the former may even be destroyed through the nervous system. 8. That both the muscular and nervous systems, though independent of the sensorial system, are so influenced by it, that they may even be destroyed through it. 9. That although, in the less perfect animals, we find the muscular life existing alone, and the muscular and nervous existing without the sensorial life, in the more perfect animals, they are so connected that none can exist long without the others. 10. That nutrition, circulation, and respiration, are the means by which they are so connected.

In a second paper,* Dr. Phillip details experiments by which he ascertained that chemical stimuli applied to the nervous system exert a greater power over the heart than mechanical stimuli, "while the muscles of voluntary motion are more excited by the latter." By stimulating generally the brain and spinal marrow, the brain is affected; but the muscles of volition are affected only by stimulating the origin of the spinal marrow and the nerves. Neither chemical nor mechanical stimuli affect the heart unless the impressions be made on a large portion of the brain. Dr. Phillip was led to conclude, that the rare recurrence of irregular action of the heart is owing to that organ being subject to stimuli which affect all the parts of the nervous system only, a circumstance of great importance in the animal œconomy. The velocity of the circulation, independent of the heart, is much increased by stimuli applied to the brain; but no irregular action is excited, the difference consisting merely in a greater or less degree of power.

The experiments of Dr. Phillip, as far as they tend to refute *M. le Gallois'* opinion, are much strengthened by some experiments by Mr. William Clift on carp.† We shall only notice

* *Phil. Trans.* 1815. Part ii. p. 424.

† *Experiments to ascertain the Influence of the Spinal Marrow on the Action of the Heart in Fishes.* By Mr. William Clift. *Phil. Trans.* Part i. 1815. *Repository*, vol. iv. p. 233.

his fourth conclusion—"That whether the heart is exposed or not, its action continues long after the spinal marrow and brain are destroyed, and still longer when the brain is removed without injury to its substance."

A view of this important subject, different from that by Dr. Phillip and *M. le Gallois*, is taken by Mr. Pring. We shall embrace an early opportunity of laying a review of his work* before our readers, and at present only notice that although he maintains that the action of the heart is not independent of the brain and nervous system; yet, as the circulation can be maintained for some time after decapitation, and then ceases, he admits, "that the dependence of the action of the heart upon the function of the brain is not direct, but mediate; that it is not the immediate source of the power which moves the heart, but that it is connected with this source."

Contrary to the generally received opinion, Dr. Parry, in a paper read before the Royal Society,† endeavours to prove that the pulse does not depend on the systole and diastole of the heart, but that this vibration is nothing more than the reaction of the blood to maintain its regular continuous motion through the arteries, which he regards as simple canals. He conceives the pulse to be produced by a diminution of the diameter of these canals, and this is effected at every junction of a vein with an artery, and hence a pulse is produced.

Nearly about the same time that Dr. Parry was thus attempting to explain the action of the arteries, Dr. *Zugenhuhler* read a dissertation to the *Société Academique de Medicine*, on the motion of the blood in the veins.‡ After pointing out the insufficiency of all former theories to account for this vital action, he thus states his opinion of its cause. "During the diastole of the heart, a vacuum is produced into which the blood flows. The heart is then irritated to re-action by the blood which fills it, and expels it by its systole. While the systole continues, the blood remains at rest, until by a new dilatation of the heart it again

* *A View of the Relations of the Nervous System, in Health and Disease*, &c. by Daniel Pring, Member of the Royal College of Surgeons, London; and Surgeon at Bath. 8vo. p. 256. London, 1815.

† *Repository*, vol. iv. p. 165.

‡ *Journal General de Medicine, &c. &c.* tom. liii. p. 129.

rushes into the vacuum ; and thus the powers of the heart are mechanically continued.”* We need scarcely observe that this mechanical doctrine is not likely to be adopted in this country.

In nothing is the perfection of Nature more conspicuous than in adapting the organs which are destined to perform the same functions in different animals to the peculiar circumstances under which they are placed, and their habits of life. Sir E. Home has exemplified this remark in an examination of the respiratory organs in some genera of vermes which live in water.† He has ascertained that in the lamprey, the lampern, the myxine, the aphrodita aculeata, and the leech, these consist of openings on both sides of the neck, leading into oval, or spherical, or, in some, flattened bags, which act the part of gills ; the water passing into them, and being afterwards thrown out again after the air is separated from it. The uses of this peculiarity of structure are rendered obvious by examining the habits of the animals in which they are found. Thus “in the *lamprey*, the mouth is more constantly employed in laying hold of its prey and other substances ; and therefore the respiratory organs are not connected with it, but situated near it. In the *myxine*, which feeds upon the internal parts of its prey, and buries the head and part of its body in the flesh, the openings of the respiratory organs are removed sufficiently far from the head to admit of respiration going on, while the animal is so employed.”

Among the various substances dangerous to human life to which recent inquiry has been directed, is, the poison peculiar to certain fishes. The observations of Mr. Burrows on this singular and hitherto little investigated subject, tend, at least, to the dispersion of the pre-existing errors, as to the cause of this property in fish ; and, so far, will facilitate further inquiries. The

* The following are the author's expressions : “ Cordis diastole vacuum oritur, et venosus sanguis imbibitur. Cor sanguine repletum irritatur ad re-actionem, et systole cruor expellitur. Durante systole, sanguis venosus quiescat donec dilatatione novâ cordis in vacuum irruat ; et sic rythmo alternante, vires mechanica cordis perennant.”

† Phil. Trans. 1815, Part. ii. p. 256. art. xvi.—“ *On the Structure of the Organs of Respiration in Animals, which appear to hold an intermediate place between those of the class Pisces and the class Vermes, and in two of the genera of the last mentioned class.* By Sir Everard Home, Bart. V. P. R. S.

‡ *Ibid.* p. 265. art. xvii.

hypothesis of Dr Chisholm, that the base of this animal poison was cupreous, which was supported by very plausible reasoning in the elaborate and ingenious dissertation of that industrious and learned physician on the subject, is now acknowledged by him to be erroneous.* He candidly states, that, "having brought to England some of the argillaceous stone of Antigua. tinged with green, and thence supposed to be impregnated with copper," it was submitted to the experiments of a very skilful chemist, when no trace of that ore was detected: but there was a precipitate possessing the qualities of sulphate of barytes.

Upon this result Dr. C. says, the gentleman who made the experiment suggests, that "the affinity of muriate of soda to barytes is very great, and facilitates the solubility of the latter in water. Hence, considering the ponderosity of barytes, we perceive readily enough why the solution in sea-water should remain stationary, immediately over the surface of the rock containing the barytes; and why it should not be affected by currents and tides. Now as all fish feed near, or at the bottom, those resorting to the tracts of the sea superincumbent to such rock, receive a large portion of this solution into their bodies. And as all fish contain water in an uncombined state, in a much larger proportion than any other class of animals, it follows that this solution, after being received into their bodies, may be therein retained without affecting the living principle of the animals themselves, although it gives them a capacity, when they become the food of man, of acting on their systems as a violent poison." How far, Dr. C. adds, these may be "words without knowledge," he will not take upon himself to say.

However unsatisfactory this reasoning may be; for how does it account for the fact, that a fresh fish shall be entirely innocuous, and be on the following day virulently venomous? yet it is but just, where so much obscurity prevails, to publish the theories the learned may offer as a guide to investigation.†

* This information is contained in a letter from Dr. Chisholm to Mr. Burrows.

† The Report to the Royal Institution of France, and to some medical societies of Paris, by *Professor Halle*, and by other physicians, on Mr. Burrows's Paper on Fish Poison (vide *Repository*, vol. iii. p. 445,) and the interest it has excited in several parts of Germany, lead to the hope that the inquiry will be successfully pursued. And this expectation is the more con-

In adding, Dr. Parry's Elements of Pathology and Therapeutics ;* Mr. Highmore's Case of a Fœtus found in the Abdomen of a Young Man ;† and Dr. Phillip's of one found in that of a Child ;‡ with a second edition of Dr. Hunter's large Plates of the Anatomy of the Human Gravid Uterus ; we believe we have noticed all that has been done in this department of Medical Science within the period of our Retrospect.

fidest, from a communication of the learned and ingenious *M. Orfila* to the author ; who expresses his determination to make it the particular object of his researches in a voyage he meditates. *M. le Docteur Roche*, in his Report to the *Athenée de Médecine*, finding no synonym for Fish Poison in the French language, has named it, "*Le Poison Ichthyque*."

* Elements of Pathology and Therapeutics ; being the outlines of a work intended to ascertain the Nature, Causes, and most Efficacious Modes of Prevention and Cure of the greater Number of Diseases incidental to the Human Frame. By Caleb Hillier Parry, M.D. F.R.S. &c. vol. i. 8vo. pp. 463. London, 1815. As we shall soon review Dr. Parry's work, we at present merely extract the Recapitulation with which the volume concludes, from which some idea may be formed of the doctrines he supports.

"First, that the far greater number of the diseases incidental to the human frame depends, at some point or other on that succession of antecedent circumstances which constitutes the chain of causes, on excessive momentum of blood, whether local or general.

"Secondly, that this momentum is not, necessarily, always excessive absolutely ; that is, in relation to the usual state of perfect health in the mass of mankind ; but relatively to the state of the individual at the period given.

"Thirdly, that many of those movements, which constitute what is called disease, and which, for the time, produce disorder of the different functions, whether of body or mind, are, in reality, processes, the general tendency of which is to restore health and to prolong life ; although, on particular occasions, their operation may be either deficient on one hand or excessive on the other ; or may be even sometimes directed to parts which seem, as it were, unnecessarily implicated in the vain and fatal conflict."

† A Case of a Fœtus found in the Abdomen of a Young Man. By Nathaniel Highmore, Surgeon, Sherborne, Dorsetshire. 4to pp. 30. two plates. London, 1815. For a review of this case, vide *Repository*, vol. iv. p. 403. We take this opportunity of noticing, what we neglected to state in our review, that Mr. Highmore, in his opinion of the causes of this phenomenon, has been anticipated by Mr. Simmons of Manchester, in his description of a case of monstrosity.—Vide *Medical Facts and Observations*, vol. viii.

‡ This case was reported by Dr. Phillip to the Royal Society. He conceives that the phenomenon originated from one fœtus being inclosed within another in the womb. Vide *Repository*, vol. iv. p. 165.

Theory and Practice of Medicine.

No subject is more interesting to humanity, or of more importance in a professional point of view, than the correctly ascertaining the laws which regulate the propagation of diseases from one individual to another. One of the greatest of the difficulties which oppose the attainment of truth in this investigation, is the uncertainty of the accounts which are given as to the circumstances under which the individuals who are attacked were placed prior to their receiving the disease; and hence of determining whether the malady be infectious or contagious. This observation, it must be evident, applies to those diseases only which are communicable through the medium of the atmosphere. Those may be regarded as *infectious*, when the sphere of action of the virus is very greatly extended, or when, from peculiar circumstances, such as an atmosphere loaded with adventitious matters arising from animal and vegetable decompositions, the virus exhaled from the body of a diseased individual, instead of being weakened by its dilution in the surrounding air, seeming to acquire a greater power of action from the miasmata with which it mixes, becomes capable of producing a similar disease at a considerable distance from the source of infection. Those diseases, on the contrary, in which the sphere of action of the virus is limited to a very small distance only from the body of the diseased, or which requires immediate contact, and on which the atmosphere seems to exert but little if any influence, may be justly regarded as *contagious*.

Contemplating the subject in this point of view, Dr. Hosack has published some very interesting "observations on the laws governing the communication of contagious diseases, and the means of arresting their progress." * He is of opinion that both plague and yellow fever are not generally contagious,

* Dr. Hosack's paper was read before the Literary and Philosophical Society of New-York, on the 9th of June 1814. The following are the conclusions he draws from his facts and observations: "1st, That an impure atmosphere is indispensably necessary to multiply and extend the specific poi-

but are propagated only through the medium of a vitiated atmosphere; and that the local circumstances of any place to which it is conveyed, determine either its extinction or its diffusion. Thus, for instance, in a person sickening of yellow fever in a town, and returning home to the country, although the disease will run its course in the individual, yet the infection will not spread; but in the close air of a crowded city, the reverse will occur; because, in this latter case, the vitiated state of the atmosphere adds a force to, or increases the virulence of the morbid atoms which propagate the disease.

This opinion of Hosack is supported by the observations of Dr. Pardon Bowen on the yellow fever; * and still more strongly by those of Dr. Calvert in his account of "the origin and progress of the plague in the island of Malta in 1813." † "It appears to me," says Dr. Bowen, "that we have abundance of evidence to believe in its foreign origin; and that it is a disease *sui generis*, generated originally in tropical climates, and oftentimes brought into and propagated under favourable circumstances in the United States. And I believe it requires a peculiar constitution of atmosphere, as a pabulum to support the contagion, and render it capable of re-production: this peculiar condition is found in sea vessels, and about salt rivers, docks, &c." Dr. Calvert's observations led him to conclude, that the plague communicates its pestilential influence to the atmosphere; and that it is diffused to a greater, or less distance ac-

son constituting plague, dysentery, typhus, and yellow fever. 2nd, That the impurities of the atmosphere do not produce their effects in the manner suggested by Dr. Chisholm, by increasing the susceptibility of the system to be acted upon by the peculiar virus of those diseases. 3rd, That instead of predisposing the body to be thus acted upon, the reverse is the fact: that the predisposition of those who are most exposed to such impure air is less, while those who reside in the pure air of the country are most liable to be infected when exposed to the contagion. 4th, That the impurities of the atmosphere are fermentable materials, to be called into action by the specific ferment of those diseases, aided by heat, moisture, and a calm state of the atmosphere; and that as far as such atmosphere extends, and the circumstances favourable to such fermentative or assimilating process continue, so far do these diseases become epidemic, but no further."

* *American Medical and Philosophical Register*, vol. iv. p. 341.

† *Medico-Chirurg. Trans.* vol. vi. p. 1.

cording to climate, season, and local circumstances ; altogether independent of “ its resting upon some material and visible object, hereafter to be communicated by contact alone.” As a powerful argument in favour of his opinion, he inquires, “ why do all diseases that occur during a pestilential period partake of the nature of the plague ?” and, after stating various facts, adds, “ the most respectable of the Maltese physicians acknowledged to me, that they believed every case of fever that occurred during the season of plague was pestilential.”*

Connected with remarks illustrative of the nature of contagion, we have to notice Dr. Denmark’s “ Observations on the MEDITERRANEAN FEVER ;” † which he conceives to bear a great affinity to the Synochus of England, and the Yellow Fever of the West Indies ; and yet not arising either from marsh miasma or contagion. Dr. Denmark is of opinion, the causes of this fever are the palpable sources of fatigue, “ intemperance (especially in drinking,) and vicissitudes of heat and cold.” On a correspondent state of fever, and also on intermittents, as they occurred in the peninsular army under Lord Wellington, some valuable facts have been recorded by Sir James Macgrigor. ‡ Some additional cases of the fever which appeared lately at Cambridge have also been published by Dr. Harrison and Mr. J. Haviland ; § from which it is evident, both from the nature of the symptoms and the appearances on dissection, that the brain was the principal seat of the disease ; and that it was of a contagious nature.

* “ It is extremely probable then,” says Dr. Calvert, “ that the plague at Messina was introduced exactly in the same way as that at Malta, *viz.* through the medium of the air, and proceeding from the bodies of two men who died and were buried in the lazaret.”—(*Medico Chirurgical Trans.* vol. vi. p. 61.

† *Medico-Chirurg. Trans.* vol. vi. p. 296.

‡ *Medico-Chirurg. Trans.* vol. vi. p. 381. This valuable paper is not confined to fever, but is, what it professes to be, a “ Sketch of the Medical History of the British Armies in the Peninsula of Spain and Portugal.” It contains a number of facts highly creditable to the observation, judgment, and management of the author, and of the utmost importance to military medical officers.

§ Observations on the Necessity and Utility of Blood-letting in Continued Fever, by John Allen. Vide *Edinburgh Med. and Surg. Journal*, No. xliii. p. 318.

It is pleasing to observe how much these writer's coincide in asserting the efficacy of blood-letting in the early stages of continued fever. Since our last Report, several new cases of its success in yellow fever have also been published.* The great point to insure the beneficial effects which the lancet is calculated to afford, is to ascertain correctly the proper period for employing it. In general, bleeding should be resorted to within forty-eight hours from the attack; and repeated at short intervals until the symptoms abate. In the bilious remittent, Dr. Denmark remarks, "after the yellow suffusion, whatever may be the other symptoms demanding it, venesection, I believe, will not be borne with impunity." The same practitioner bears ample testimony to the powerful influence of purging in these fevers, particularly with calomel; which appears to prove almost specific when it can be readily introduced into the system.

In the intermittents of the Peninsula, Sir J. McGrigor made several comparative experiments with the *cinchona cordifolia* and the *cinchona lancifolia*, and found that their power in curing these fevers was nearly equal.†

A case of typhus gravior, as it occurred in a patient in the Hôtel Dieu, has been published by Dr. Drogart, in which the affusion of cold water is said to have proved hurtful: but it only tends to prove the imperfect view which is taken of disease on the continent, and the trivial attention to the discrimination of symptoms by which alone any success in the application of remedies can be rationally expected.‡

Rheumatism,§ although certainly more general, yet, is daily coming more under the controul of the practitioner. Much of this has undoubtedly arisen from its intermittent character being

* *Med. Trans. of the College of Physicians*, vol. v. p. 381 and 400.

† *Medico-Chirurg. Trans.* vol. vi. p. 418.

‡ *Journal de Medecine*, tom. xxxiv. p. 131.

§ The French practitioners have been in the habit of employing a solution of camphor in acetic ether as an external application in rheumatic and other affections attended with pain. A similar composition has lately been introduced by Dr. Tourtuel of Munster. It is prepared by dissolving one grain of camphor in an ounce of Hoffman's anodyne liquor; and in some cases its efficacy is augmented by adding the oil of cajeput. The following, according to Dr. Tortuel, are the cases in which this remedy is chiefly indicated.

correctly remarked ; and from the use of the cinchona and spirit of turpentine, after the skin and bowels have been opened ; and the force of the circulation moderated in habits of an inflammatory diathesis. The dread of metastasis has, we believe, prevented the cinchona from being so freely employed as should have been ; but we have never seen an instance of this ; and we believe the occurrence to be extremely rare* In our own practice, also, we can bear testimony to the efficacy of spirit of turpentine, even when the blood drawn appears much cupped, and very buffy. A singular instance of the beneficial effects of drinking sea-water in rheumatism is detailed by Dr. Reid Clanny.† How far, from analogy, purgatives might be pushed in this disease, time must determine.

As PHTHISIS still resists the influence of medicine, and little progress has been made in settling any mode of practice likely to prove successful, except removal to a more temperate climate ; it becomes very important to ascertain the real utility of those situations to which phthisical patients are generally sent. Dr. Young has entered fully into the consideration of this subject, and recommends the West-Indies, for instance Bermuda, or "a tempered and sheltered part of Jamaica." These situations, he observes, "together with the equable qualities of the sea air, to which the patient must be exposed during the voyage, must present every advantage towards the recovery of a con-

1. Rheumatic and gouty irritation, particularly when the head is affected, attended with a tearing, pungent pain, and vertigo : rheumatic odontalgia, and catarrhal cephalalgia. 2. Hysterical cephalalgia. 3. Local debility of the head supervening to excessive evacuations. 4. Intermittent fevers of nervous subjects, particularly when the corporeal disease has been removed, and the nervous impression only remains : in which cases, says Dr. Tourtuel, frictions with this solution have proved more efficacious than even the cinchona.

* Mr. Grainger who has published some excellent remarks, "On the Effect of Cinchona in Acute Rheumatism," (vide *Medical and Surgical Remarks*, &c. by Edward Granger, 8vo. London, 1815,) observes, "I have never seen but one case of metastasis in acute rheumatism, where that mode of treatment (with cinchona) has been followed."—p. 241. He suspends its use only when the urine deposits a pink sediment ; at which time he exhibits purgatives.

† *Repository*, vol. iv. p. 180.

sumptive person, that climate alone can possibly bestow.”* He condemns both Lisbon and Montpellier; an opinion confirmed by that of Dr. Somers, who resided as a physician at the latter place; and who observes, “that the vicinity of the mountains to the north of Montpellier renders the climate, in spring and winter, very changeable; and this is found to be a cause of much mischief to phthisical patients.† Sir James Mac Grigor, from personal observation, also objects to Lisbon ‡

As no disease proves a greater scourge to armies than DYSENTERY, it is natural to look to military practice for any improvements in the treatment of it. In Sir James Mac Grigor’s sketch already alluded to, the method pursued by Dr. Somers is stated to have been imminently successful. He generally bled freely in the first instance, and immediately followed it up with plentiful dilution, and compound powder of ipecacuanha, in doses of twelve grains, frequently repeated. Calomel and opium were given every second night, with small doses of neutral salts during the day; and, after the disease was thus allayed, health was gradually confirmed by light tonics.§

The increasing frequency of PARALYSIS has been generally noticed, but has not been satisfactorily traced to any evident cause. In a detail of some cases of this disease,|| Dr. Powell states his opinion that topical congestion, or the extravasation of blood, is not in every case the cause of paralysis; but “that

* A Practical and Historical Treatise on Consumptive Diseases, deduced from original observations, and collected from authors of all ages, by Thomas Young, M. D. &c. 8vo. pp. 478. Lond. 1815; a work, which, from Dr. Young’s celebrity, it is almost unnecessary for us to observe, is replete with learning and research.

† *Medico-Chirurg. Trans.* vol. vi. p. 445.

‡ *Ibid.* Sir James remarks, “The result of our experience in Walcheren was, that the air was in general favourable to pulmonary complaints;”—an opinion which coincides with some facts lately detailed regarding the effects of the atmosphere of the fenny counties of England in phthisis.

§ In noticing the dissections of dysentery, and the evident sequelæ of inflammatory action which all the abdominal viscera exhibited, Sir J. Mac Grigor adds, “one spleen weighed three pounds four ounces.” *Medico-Chirurg. Trans.* vol. vi. p. 436.

|| *Med. Trans. of the College of Phy.* vol. v. p. 96.

this disease may also originate in a peculiar condition of the brain and nerves alone, unattended by any discoverable alteration in their anatomical structure." The most frequent occasional exciting cause in these cases, was the application of cold; and the remedy which of course was directed to the restoration of the lost, or rather suspended, power of the nerves, was the due application of heat and moisture. In *delirium tremens* the practice of Dr. Sutton is becoming every day more firmly established by the experience of others.*

The obstinacy with which TETANUS has resisted the most energetic and judicious methods of treatment, has suggested the trial of every remedy which either possesses, or is supposed to possess, antispasmodic powers. Among these we may class spirit of turpentine, which Dr. Phillips exhibited in the form of enema in a case of lock-jaw with the most beneficial effects,† The dose was half an ounce, combined with eight ounces of infusion of senna; the visible effect was an almost instantaneous unlocking of the jaw, and subsidence of all the unfavourable symptoms. We were, indeed, previously acquainted with the efficacy of this essential oil as an antispasmodic, from a hint given by Dr. Latham in his work on Diabetes, and the cases published by Dr. Percival,‡ in proof of its power in epilepsy: and we have now to state, that several new facts have been made public by Dr. Latham,§ Dr. Thomas Young,|| and Dr. Lithgow:¶ in which it appears that, in small doses, spirit of turpentine has very little effect in epilepsy; but in doses of an ounce, unless the disease originates in the head, it appears perfectly adequate to overcome the fits. In chorea, also, it has been exhibited by Dr. Powell with decided advantage.**

A peculiar species of convulsions, attacking children, and bearing some affinity to epilepsy, has been noticed by the late Dr. Clarke. It seems to originate in visceral disease; but the proximate cause appears to be pressure on the origin of the nerves from inordinate determination of blood to the head.

* *Repository*, vol. iv. p. 363.

† *Medico-Chirurg. Trans.* vol. vi. p. 65.

‡ *Edin. Med. and Surg. Trans.* vol. x.

§ *Med. Trans. of the Roy. College of Phy.* vol. v. p. 65.

|| *Ibid.* 274.

¶ *Edin. Med. and Surg. Journ.* vol. xi. p. 500.

** *Ibid.* p. 374.

Bleeding, purging, and the warm-bath are the remedies which have proved successful.*

Although the cause of COLICA PICTONUM is so well ascertained, and much has been done in relieving the more urgent symptoms by purgatives and opium; yet, when the influence of the poison had been so much exerted on the nervous system as to produce paralysis of the wrists, the cure, if ultimately effected, has always been protracted. Dr. Roberts, however, has observed that nitrate of silver is a very powerful agent in overcoming both the cause of the spasmodic contractions; and the subsequent paralysis:† and by this means the complaint may be now regarded as being directly under the controul of art.

The variety of means by which Nature is capable of attaining the same end has been seldom more remarkably exemplified than in the successful treatment of DIABETES. By the most opposite means, such, for instance, as blood-letting and the internal exhibition of opium, the same end has been effected. In support of the efficacy of the former method several very satisfactory cases have been published by the late Dr. Satterley‡ in one of which 106 ounces of blood were abstracted; and the relief was so evident, even to the patient, that he requested a more frequent renewal of the remedy than the Doctor deemed it prudent to grant.

The observations of our ingenious correspondent, Mr. Edmondston,§ has almost demonstrated the importance of blood-letting in HYDROPHOBIA; and his opinions have been in part confirmed by the successful case of Hufeland,|| although the circumstances were certainly less conclusive than could have been wished. It must, however, be acknowledged that several unsuccessful cases have been reported within the last six months, in all of which the lancet was resorted to; but in some, at least, ¶ the circumstances were such as did not allow of any rational prospect of success. Among these, in particular, may be classed the case detailed by Dr. Albers, of Bremen. It was

* *Clarke's Commentaries on some of the most important Diseases of Children*, Part. i. p. 87. For an analysis of this important work, vide *Repository*, vol. iv. p. 290.

† *Med. Trans. of the Roy. Coll. of Physicians*, vol. v. p. 45. ‡ *Ibid.* p. 1.

§ *Repository*, vol. iv. p. 268. || *Ibid.* p. 500. ¶ *Ibid.* p. 117.

treated by blood-letting; and 100 ounces of blood were abstracted at three bleedings; but there were peculiar circumstances in the case, producing strong mental excitement, which renders it nearly impossible to draw an inference as to the effects of the bleeding. "She had," says the Doctor, "a clear foresight of her perilous situation; and no arguments nor consolation of mind could tranquilize her on that score.* During the first bleeding, however, she felt some relief; and could see water poured from one vessel to another without any disagreeable sensation, which was not the case prior to the bleeding; but she soon relapsed, and subsequent bleedings produced no beneficial effect.

On the subject of SCROPHULA we have to notice the critical enquiry by Dr. Henning,† which displays, at least considerable learning. After examining the etymology of the name, and taking a general review of the theories which have been invented to elucidate the nature of scrophula, Dr. Henning enters upon an inquiry as to its supposed hereditary nature; and concludes, that, although it often appears in the progeny of those who have had the disease, yet, it also "often occurs in individuals whose predecessors were never known to have it;" and it is also irrefragably proved, "that the natives of temperate climates, where scrophula is unknown, upon migrating to the cold and fluctuating regions of the north, are there invariably attacked with it." He supports the opinion, that the predisposing cause of the disease is a moist and cold atmosphere; and adds, that the exciting cause is a peculiar effluvia or miasma, which is taken in by the cutaneous absorbents; a doctrine, which, were this the proper place, it would not be difficult to refute. He regards the suppuration of the tumour as an effort of Nature to throw off the disease; and considers the forwarding of this intention as one of the most important curative means. The *Æthiops graphitialis* is strongly recommended by Professor Huber as a remedy in this disease. ‡

As a specimen of the advantages of graphic delineations in illustration of diagnostics, Dr. Bateman's plates, or rather the

* *Edin. Med. and Surg. Journal*, vol. xi. p. 415.

† A Critical Inquiry into the Pathology of Scrophula, &c. &c. by George Henning, M. D. 8vo. pp. 256. London 1815. ‡ *Repository*, vol. iv. p. 7

republication of Dr. Willan's plates, with the additions of Dr. Bateman now in progress, must not be overlooked. Without these, his Synopsis is in some places not easily understood ; but with them, every thing that the practical physician can desire on the subject of cutaneous diseases is placed within his reach. In this order of diseases, the only novelties we have to refer to are, the mode of curing impetiginous ringworm by adhesive plaster, suggested by Dr. Reid Clanny ;* and the fact, noticed in our observations on the prevailing diseases, that *Eczema rubrum* can be produced by the external application of red precipitate.†

In concluding our details on the Practice of Medicine, we have only further to mention the observations of Dr. Valentin on the use of the actual cautery, confirmed by Professor Reich's case,‡ the important communication of Mr. Gaitskell on biliary obstruction, in which hydatids to a great amount were discharged ;§ the recommendation of Dr. Eichrodt, of Carlsruhe, in favour of the external use of oxymuriatic acid, in venereal diseases ;|| Dr. Baillie's paper on green jaundice ;¶ and a curious paper by the late Dr. Clarke on the effects of eating oysters on women after child-birth ;** as particularly deserving of attention.

Observations on the Utility of Blood-letting and Purgatives, in a Fever which prevailed in the Russian Fleet. By D J. H. DICKSON, M. D. F L S Physician to the Fleet, and formerly Superintending Physician of his Imperial Majesty's Squadron in the Medway.

[From the Edinburgh Medical and Surgical Journal.]

THE following observations, so far as they relate to the general utility of early blood-letting and purgatives, in a fever which, on two occasions, prevailed in the Russian squadron in

* *Repository*, p. 51.

† *Ibid.* vol. iv. p. 525.

‡ *Ibid.* vol. iv. p. 342.

§ *Ibid.* p. 466.

|| *Ibid.* 342.

¶ *Med. Trans. of the Roy. Col. of Phy.*

vol. v. p. 143.

** *Ibid.* p. 109.

the Medway, under my superintendence, were written upwards of eighteen months ago ; but, being then with the North American fleet, I deferred the final consideration of the subject until my return.

In the mean time, I sent my remarks to Drs. Douglas and Dobson, who, from having had the charge of the Argonaut and Trusty hospital-ships, appropriated to the reception of the sick, were peculiarly qualified to appreciate their correctness ; and I requested to be favoured with such alterations and additions as their experience should suggest.

I have much satisfaction in bearing testimony to the skill, humanity, and attention evinced by these gentlemen in the very arduous situation in which they were placed ; and I am bound equally to acknowledge their zealous co-operation on all occasions, and the readiness with which they have subsequently given me every information in their power. As their opinions are communicated to me as “ the entire result of practice and observation, unwarpd by prior predilection for any particular theory,” I may fairly hope, that their coincidence with my own, as to the practical results, will give these greater weight than, individually, I could have expected them to possess. My object is simply to detail, with all the fidelity in my power, the features of the disease, and the success of the treatment adopted,—a duty which seemed, in some respects, to devolve upon me, and of which ill health, and other irrelative circumstances, have prevented the earlier fulfilment.

I have occasionally adverted to different authors as they occurred to me, in support or illustration of these remarks ; but I have also frequently omitted to do so ; and, from unwillingness to extend my references unnecessarily, have oftener alluded to my authorities, or given their meaning, as found in my note book than quoted their precise words. In ships recently and hastily fitted out, fever is so frequent an occurrence, that it would be superfluous to dwell upon the rise and progress of that in question, by explaining the consequences attendant upon the equipment of a large fleet, with the utmost dispatch, manned chiefly with landsmen, necessarily subjected to great changes in their diet, habits, &c. and unaccustomed to the privations and exposure incident to their new mode of life. During the voyage to England, sickness increased rapidly in Vice-Admiral Crown’s

Squadron, which had been long at sea, having sailed from Archangel to join the division at Cronstadt; and by the time the fleet arrived in the Medway, fever had made so alarming a progress, that it became necessary to appropriate hospital-ships to receive the sick, which were immediately crowded with patients; several of whom were in a dying state, and many in the advanced stage of typhus.

To the previous exertions, and judicious arrangements, of Dr. Weir, inspector of hospitals, I found myself greatly indebted upon my arrival, some time afterwards.

To the fleet, which, under the command of his Excellency Admiral Tate, consisted of fifteen sail of the line, and eight frigates, &c. were then attached twelve British medical officers,—the services of whom, and of those appointed on subsequent occasions, were of great assistance to me, and advantageous to the squadron. Exclusively of the milder cases, treated by them on board, the hospital and convalescent ships contained, at that time, about 300 patients; but, as shewing the prevalence of the disease, and the result of the treatment employed, it will be better to give the total number, by premising that, between the 18th of December 1812 and the 24th of April 1813, there were received by the Argonaut and Trusty 802 cases; and, again, between the 25th of September 1813, and the 3d of March 1814, were admitted 1006 cases; making in the whole 1808 patients in hospital, generally labouring under fever. Of this number, including convalescents at the time of my arrival, above two thirds were under cure, and 109 died, during the periods of my inspection, comprehending seven months, which is nearly one man in eleven. The antecedent mortality had been double this proportion, which may be accounted for, by many, at the commencement, having been received in the last stage of the disease, whereas, afterwards, they were generally sent early;—by the greater malignity of the first attacks;—and also by the greater confidence and freedom with which the depletory system was resorted to, in proportion to its success. This, it may be presumed, would have been still greater, if the patients, in all cases, could have been sent to the hospital-ships at once; but, notwithstanding every injunction to this effect, owing to their distance from the fleet, the state of the tide and weather,

and their frequently not complaining immediately, the fever had often made considerable progress before it was detected.

I ought here to observe, that the above dates (in both cases commencing with the reception of the sick into the hospital-ships, and ending when my appointment ceased, on the fever being subdued) comprehend two distinct periods of sickness; the ships having remained perfectly healthy from April 1813, till the following September, when fever was revived in the fleet by a large reinforcement of recruits having arrived in crowded transports; but as the disease and the treatment were the same, I have thought it best to give the aggregate result, and to state that my remarks apply to both periods; though in the former, the disorder had attained a higher degree of malignancy before it was controlled. Many of the first and worst cases, as already stated, were admitted in the last stages of typhus, with low muttering delirium, picking at the bed-cloths, subsultus tendinum, hiccup, squinting, and involuntary exertions,—and some with a vomiting of dark-coloured fluid, gangrene of the toes, &c.

When I joined the fleet, the fever, in both instances, had become less typhoid; it was reported to me to be “synochus, frequently terminating in typhus, and death, if copious evacuations had not been had recourse to at an early period of the disease.”

It is highly important, here, to contrast the difference of symptoms under this practice, even in unfavourable cases, with those of the patients first received, which had not been controlled by depletion. The tongue was often parched, but not black; there was delirium, but not of the low muttering kind; subsultus tendinum, but without great nervous tremor; seldom involuntary discharges, and no strabismus, nor those appearances, of putrescency which mark the close of malignant fever.

It appears to me, therefore, an inevitable conclusion, that, by those remedies which repress inflammatory action at the commencement, those graver, or eminently typhoid symptoms, which characterize the advanced stage of such fevers, were prevented. But I am not anxious to designate the disorder, since it has been but too common to connect with the name peculiar ideas of a disease, modifying the treatment, which ought alone to be regulated by a knowledge of its nature and tendency, aided by the pathological light of dissection.

In proof of the highly infectious nature of this fever, in the first instance, particularly in the hospital-ships, where so much disease was concentrated, it will be sufficient to mention, that nine out of eleven medical officers, attached to the sickly division, and to the hospitals, were attacked in the course of a few weeks. It proved fatal to one surgeon and an assistant; and two assistant-surgeons belonging to the *Trusty* died of the consequences. I was one of the last taken ill, after having been exposed for little more than ten days; which may be readily accounted for, when the powerful exciting causes inseparable from visiting a distant, detached, and sickly squadron, in the middle of winter, are taken into consideration.

The contagion appears to have been particularly powerful in the *Trusty*, which ship had received the first, and consequently the worst cases; as not only the surgeon, and other medical officers, suffered severely, but twelve out of sixteen attendants, accustomed to the duty of waiting upon the sick, were seized with fever, four of whom died.

Several attendants in the *Argonaut*, two assistants, and ultimately the surgeon, were also attacked; but he informs me, that, with one exception, all recovered, in whom he had the advantage of combatting the disease at its commencement. It is needless here to dwell upon the value of various prophylactic measures under the heads of separation, ventilation, dryness, cleanliness, better clothing, &c. to which my solicitude was chiefly directed, or the difficulties that opposed their execution. I may, however, remark, that the benefit was in proportion as they were practised, and that the disease gradually became milder, to which the decreasing severity of the weather, as the spring advanced, materially contributed. Indeed, although malignant cases still continued from time to time to occur, in the more general course of symptoms, such as I am about to describe, there was little remarkable; and without keeping in view the tendency to inflammation and disorganization which characterized the progress of the disease, there would have appeared little to warrant apprehension; but, as Dr. Haygarth justly remarks, after describing the symptoms of *Typhus mitior*, sometimes even this mild typhus is fatal.

The invasion of this, like many other fevers, was generally preceded by listlessness, languor, and weariness, which, accord-

ing to the old maxim foretell disease. This state of indisposition to mental or bodily exertion, was followed by chilliness rarely increasing to rigour, prostration of strength, or a sense of general soreness and fatigue; pain of the head, back, &c.; anorexy, but seldom vomiting, and succeeded by increased heat, though the patient often complained of cold; frequent pulse, but varying in strength, white tongue, thirst, costiveness, and other symptoms of fever, which often continued for several days before any particular organ appeared to be attacked. In some cases, a higher degree of febrile action was early indicated by flushing of the face, sensibility and glossiness of the eyes, throbbing of the arteries of the neck and temples, with greater heat and anxiety of respiration; but though, in others, the accession was less strongly marked, and the patient made little complaint, except of headach at first, yet symptoms of increased determination to the breast, head, &c. supervened in a few days, unless anticipated; corroborating the observations of Riverius and Baglivi, as to the frequency of visceral inflammation in such fevers.

The features of fever are so infinitely modified, that I have no intention of delineating all the varieties in the present instance; but I trust I shall not be suspected of the less veneration for such great authorities as Dr. Cullen, Fordyce, &c. if I notice here, that my observation has not tended to convince me of the propriety of holding forth an intermittent paroxysm as an epitome of continued fevers in general, or of considering them as merely a repetition of such paroxysms, more or less distinctly marked, with longer or shorter intervals.

I am, therefore, gratified by having since found that Dr. Willan, in his reports for 1801, from close attention to the origin, symptoms, and termination of both, is of opinion that no direct analogy subsists between an intermittent and a malignant fever, propagated by infection,

The most frequent occurrence in the disease under consideration was a sense of dyspnoea, and a cough supervening about the fifth day: in some it assumed more the appearance of simple pulmonic inflammation; in others of pneumonia typhodes. It was occasionally attended also with symptoms of cynanche, and swellings of the parotid and submaxillary glands, which, in a few instances, terminated in mortification and death; and gelatinous-

looking effusions were likewise sometimes found in the trachea and bronchial vessels ; but these varieties were comparatively rare.

Delirium and coma were very constant attendants at a more advanced period, in unfavourable cases ; and it is hardly necessary to remark, that the danger was in proportion to the degree of stupor, and the depraved or oppressed condition of the sensorial and respiratory functions ; while, in the more obscure cases, it was better estimated by the countenance, posture, and answers of the patient, than by the pulse or other prominent symptoms. In a few instances in which they occurred, an unpleasant cadaverous smell from the body, and much tremor of the hands and lips, indicating great depression of nervous energy, proved fatal symptoms. The same remark was particularly made to me in the Levant, as to tremor of the lips in the plague.

Some authors, as Sydenham, Huxham, &c. mention examples of spontaneous salivation proving critical in fever. Instances of increased determination to the salivary glands sometimes attended here, which could not be imputed to mercurial influence. In myself, without having taken any mercury at all, their action was excited by insensibly acquiring a habit of spitting frequently, until it amounted to complete ptyalism. It accompanied, and diminished with the disease in a remarkable degree on the seventeenth day, and had almost entirely ceased by the next morning.

It had always been considered a favourable omen, as indicating a less powerful character of fever, at least as far as relates to heat and vascular excitement ; for in those of tropical climates, I have had but too many opportunities of observing that salivation could not be induced when there was a high temperature and strong inflammatory or febrile action ; and I am therefore led to believe that its existence is incompatible with a rapid and ardent form of fever.

I may here add, that, as far as I may judge from personal recollection, the feelings which excited the greatest uneasiness and attention, were a throbbing of the temples for some nights preceding the attack, the headach in the first, and the cough in the latter stage of the disease, together with watchfulness, and a distressing sense of sinking, or extreme prostration, and a tendency to evening delirium, representing the presence of un-

pleasant objects ; but generally so mild, that the mind became sensible of it when painful, and, by opening the eyes and fixing the attention, could be recalled from its alienation.

The duration of the fever was various, often protracted, and without any regular crisis. But, upon the whole, an amendment was, perhaps, most frequently observed on the eleventh day ; though in numerous instances on the other odd days also, from the seventh to the seventeenth inclusive. Few recovered in whom a change for the better was not perceptible by the latter date, which is considered by Sir John Pringle as the most frequently critical. When the disease was prolonged, it generally left a troublesome cough behind, and an excessive degree of debility, from which the convalescence was extremely tedious, but when a crisis took place early, the recovery was rapid.

Although I am not inclined to place much reliance on such calculations, which are very liable to error, the following number of fatal cases, in which the period of attack could be ascertained, shews a great predominance of the odd days : of fifty-six cases that proved fatal in the *Trusty*, within the month, two died on the 6th, 12th, 14th, and 28th days ; four on the 7th ; five on the 9th ; nine on the 11th ; ten on the 13th ; six on the 17th ; three on the 25th ; one on the 8th, 10th, 15th, 18th, 19th, 21st, 24th, 26th, 27th, 29th, and 31st ; and none previously to the 6th, nor on the 16th, 20th, 22d, and 23d days of the disease.

The appearances on dissection proved strongly illustrative of the frequency of local congestion and inflammation. There was hardly an organ which was not occasionally found diseased ; but the parts most commonly altered in appearance and structure were the contents of the thorax, the brain, and the abdominal viscera. Of these the lungs, probably from the coldness of the season, and insufficient clothing, suffered most frequently ; and the effects of inflammation were conspicuous in extensive adhesions of their investing membrane to the parietes of the chest, pericardium, and diaphragm ; in effusions of coagulable lymph and serum, or the formation of purulent matter.

The heart occasionally, and oftener the pericardium, exhibited patches of inflammation, with spots of effused lymph, and had formed strong attachments. In one patient they adhered so firmly that the heart was torn in attempting to separate them.

The quantity of fluid found in the pericardium varied: sometimes it was considerably increased; at others, there was little or none. In a few patients the liquor pericardii was very turbid, and like whey, or partly purulent: in one, there was about four ounces of pus. In several instances (in some where there was a deficiency, but also in others where it contained a portion of fluid) the pericardium was found so thin, dry, shrivelled, and transparent, as to have the most perfect resemblance to a piece of dried bladder. This desiccated appearance, which occurred more frequently in the Argonaut than in the Trusty, is mentioned by Dr. Baillie as having been twice found by himself, and much oftener by Mr. Hunter. The diaphragm also sometimes exhibited similar dry patches, and oftener erysipelatous inflammation.

Masses of coagulable lymph were occasionally found in the cavities of the heart, and some of a yellower and more fatty appearance than the other; but instead of being more inflammable, they also shrivelled up, and exhibited the character of albumen or fibrine, when exposed to heat. This separation is not uncommon, however, in patients dying of other disorders; and often takes place after death, and probably in protracted cases previously, or in *articulo mortis*.

Though strong traces of disease were not so uniformly observed in the brain as in the thorax, yet signs of previous excitement and congestion were often evinced by the fulness of its vessels, the increased vascularity, and sometimes the agglutination of its membranes; and by numerous ramifications of fine, and as if minutely injected capillaries.

Spots or specks of coagulable lymph were sometimes thrown out on the inflamed surface of the dura mater; and effusions of fluid on the outside, or into the ventricles of the brain. In one instance, about four ounces of lymph were found between the meninges; and in some, blood was extravasated on the surface, or in the convolutions of the cerebrum; indeed, effusions of blood or serum had frequently taken place, in those who died with symptoms of compression, about the 18th day.

The abdominal viscera, and their peritoneal covering, often displayed the remains of inflammatory action also, as had been conjectured from the pain on pressure; and the small intestines adhered to each other, and to the wasted omentum. Purulent

matter, and serous exudations, containing portions of albumen, were likewise discovered, though less frequently in the abdominal than in the thoracic cavities; and though such effusions, as the consequences of inflammation, are best anticipated by the lancet, yet they may have been sometimes promoted by the intended remedy, if employed too late to be of service.

The liver was less frequently found diseased than was expected; but it sometimes bore marks of inflammation; and, now and then, its convex surface was of a spotted or erysipelatous appearance.

The gall-bladder was seldomer distended with bile than would have been the case, if purgatives had not been so freely employed. Occasional appearances betokened increased determination to the kidneys and bladder;—in a few instances the pancreas felt unusually hard, and firm;—the spleen sometimes exhibited disease:—and in one or two patients, a cartilaginous deposition, of the size of a crown piece, was found on its surface.

There was less affection of the stomach, both before and after death, than I have observed in any other fever.

These are the appearances, noted from the dissections made in the hospital-ships, which I recollect to have seen, or with which I have been favoured, as having most frequently occurred, from the sources I have already acknowledged. Without pretending to enumerate all the nicer changes, or shades of diseased structure, I merely mean to say, that one or more of the viscera became the seat of morbid action, to which the burthen of the fever was directed, either primarily, by local predisposition, or particular concurring circumstances; or was transferred secondarily by association.

Very many authorities might here be quoted in support of this alliance between fever and local inflammation; but it will be sufficient to refer to them collected in the works of Drs Clutterbuck, Beddoes, Mills, and other late writers. Mr. Burns, in his treatise on Inflammation, says, “that typhus is always attended with an inflammatory affection of the head, and sometimes of the lungs or abdominal viscera, must be acknowledged by every one conversant in dissection.”

In speaking of inflammation, however, it is necessary to keep in recollection the occasional red and vascular appearance of a part, which probably has been frequently mistaken for it. Such

an appearance of vascular fulness, in the villous coat of the stomach, particularly from venous accumulation, has been often found where no suspicion of previous inflammation could be entertained; as has been well illustrated by Dr. Yelloly in a paper of the 4th volume of the *Medico Chirurgical Transactions*.

On the other hand, if it be granted that slight inflammations are dissipated after death, it follows, that, to estimate the early and less marked effects of this state, it is necessary that the investigation should take place as soon afterwards as possible. For we should keep in mind the remark of Bichât, that inflamed serous membranes soon lose their redness; and the observation of Drs. Rush, Clutterbuck, and others, that congestion, or other morbid states of the brain, produced by disordered action, or minute, yet fatal changes of structure, may have taken place, yet leave little or no marks of disease after death.

Analogous to this, in yellow fever I have observed the serous capillaries of the tunica conjunctiva red and turgid with blood, which disappeared after dissolution.

It would appear, therefore, that there is danger of error on both sides, unless when the pre-existence of inflammation is rendered unequivocal by adhesions, suppuration, extravasation, effusion, or considerable organic derangement.

Without further enlarging upon these morbid changes, they certainly go far to establish the connexion between fever and inflammation in the present, and, by analogy, its frequency in other fevers; for, as far as I am acquainted, traces of inflammation, or of a state nearly allied to it, were discovered in such cases as had appeared to be the most purely idiopathic; and, even when the patient had complained of little or no pain during the disease, marks of increased determination or congestion were discovered in some organ after death.

It is therefore highly proper to bear in mind the extensive ravages which have been discovered on dissection, particularly in the glandular viscera, and which have oftentimes taken place, either without exciting sensation, or have been attended only with a dull low degree of pain.

Accordingly, it was often very difficult to appreciate, here, the extent of mischief going on, where it was only indicated by the maintenance of obscure febrile action, or by some sympathetic affection; for in some cases it was discovered to be con-

siderable, when the patient had made little or no complaint; and in others, the injury was found to be much greater in a part which had not been suspected, than in that of which he had complained.

I cannot, in consequence, avoid noticing here, the obscurity in which the diagnosis is often involved, and the frequent risk of deception, arising from implicitly receiving, as the seat of the disease, the part referred to by the patient. We should never forget, as Dr. Monro well observes in his *Morbid Anatomy*, that sympathy between near, and even distant organs, renders the source of disease obscure,—and that distant sensations, and sympathetic feelings, often create the most acute pain, and give the first notice of internal mischief. I need hardly observe, how peculiarly this caution must be applicable in the morbid state of the sensorium, arising from the complicated phenomena constituting fever, when the confusion or indistinctness of the patient's perceptions is so apt to lead him to refer his uneasiness to a wrong source.

The influence of one pain in obscuring another, as a physical law of sensibility, was well known to the father of medicine; nor has it escaped the universal observation of the father of our drama: "But when the greater malady is fixed, the lesser is not felt."

We have so many instances on record of concealed mischief going on in this way, which has not been suspected until developed by dissection, that it is of great consequence to have the errors of sensation, or, more strictly speaking, of reference, in fever, constantly in view; and I trust I shall be pardoned for pressing such sources of fallacy more generally upon the attention; since, by placing less reliance on the more prominent features, and by scrutinizing the minuter shades of disease, we become enabled to estimate the result more correctly.

In dangerous fevers, particularly where the brain is much affected, we have too often but a very inaccurate criterion, if we measure the extent and danger of diseased action by the pain, or by the state of the pulse, &c. Thus, while in many, these symptoms were amply sufficient to lead to the anticipation of a fatal event, it was difficult to reconcile the uniformity of this result in others, when they were much less considerable.

But, without attempting to reason upon a subject where the pathology is so obscure, and, often, perhaps, evanescent, as that of the brain in fever, it may be remarked, that the fatal injury which this organ sustained, seemed oftener to be a secondary than a primary affection, and the consequence of sympathetic connexion with some of the other primarily diseased viscera.

The idea of the brain suffering secondarily is farther countenanced by analogy; as, in many cases of wounds and accidents, in different parts of the body, we find that the apparent is often not proportional to the real danger; nor, except by sympathetic transference to the sensorium, is the local injury sufficient to account for the unfavourable result.

The perfect resemblance between sympathetic and original fever is here well worthy of observation: for often, consequent upon such local injuries, have arisen symptoms possessing all the characteristics of, and not otherwise distinguishable from, idiopathic fever; and indeed to this cause, viewed as an accidental and independent disease, the death of the patient in such cases has been, not unfrequently, but erroneously attributed.

The appearances on dissection which have been enumerated form a commentary on the observation of Riverius: "*Febres acutas et malignas rarissimè sine visceris alicujus inflammatione incidere.*" They strongly demonstrate the propriety of venesection; and, accordingly, the benefit derived from this remedy was great in proportion as it was freely and early employed. When it could be so used, it was natural to expect that, in many instances, the disease would be crushed in its birth; but it seldom could be arrested when the symptoms had made any progress. In such cases, when the tendency to inflammation and congestion was lessened, but not destroyed, it often became necessary to resort to the repeated abstraction of blood; and although I was by no means friendly to this evacuation after the first days of fever were passed, yet that it was occasionally employed in smaller quantity, at a more advanced period, not only without any bad consequence, but with evident relief, I cannot doubt, not from personal observation alone, but from the different reports that were made to me on the subject.

When the fever could be attacked soon after its invasion, a large bleeding, repeated according to its effects, appeared to be the most beneficial practice in the Argonaut; and, if not suffi-

ciently early to cut short the disease, it prevented or mitigated the symptoms of increased determination to the chest, or head, so apt to supervene.

In the Trusty, the treatment deemed the most successful was, where the patient lost within the first week or ten days between sixty and eighty ounces of blood, by taking away from sixteen to twenty-four ounces at a time. When the fever was violent, a larger quantity was abstracted in a shorter period ; but it was not often necessary to exceed thirty-six ounces in twenty-four hours, at two or three bleedings. After the tenth day it was not often considered proper to bleed, or only in smaller quantities, when indicated by symptoms of pressure upon any particular organ, or by the appearance or renewal of inflammation. When this remedy had been neglected at the beginning, or the patient was admitted on an uncertain day of the distemper, small bleedings of six or eight ounces, repeated according to the effect, were found safer than larger ones, which might have proved too debilitating, and were serviceable in preventing or moderating the consequences of inflammation and congestion. An able physician, Dr. Parry, in his *Elements of Pathology*, page 317, thinks "it is probable that subsultus tendinum, convulsive motions of the limbs, and hiccup, which often concur with delirium in various fevers, arise from long or violent irritation of the brain by sanguineous impulse." It is certainly in favour of this idea that effusions of blood or serum were generally found in the brain of those who died with these symptoms about the 18th day ; and that, in some patients where small bleedings, graduated by the pulse, were tried even as late as this, when delirium, subsultus, startings, and coma, indicated an oppressed or irritated state of the sensorium, these symptoms were diminished, the respiration became freer, and the intellect more distinct after its employment. Under this treatment some apparently hopeless cases assuredly recovered ; but it oftener failed. It is allowed that the presence of fever is most certainly detected by the state of the animal functions, and of the pulse ; but to the latter there are many exceptions. I need not here adduce the many authorities that might be quoted in support of my own observation, to shew that the pulse, in many cases, has been found little affected in the worst fevers ; that it is often little, if any, quicker than natural ; and that it is sometimes pre-

ternaturally slow. But I believe it to be unnecessary to dwell upon its fallaciousness, or on the little information it often affords as to the propriety or quantity of blood to be taken, particularly where the head is much affected. In the early stage of disease it is often small, low, feeble, and irregular, previous to considerable reaction; but, when the accession of this state is characterized by increased heat, hard, full, and frequent pulse, throbbings of the carotids, and other symptoms of excessive determination, the indication is sufficiently manifest. This state of increased action, however, does not always follow, but the pulse continues low and contracted, or labouring and oppressed, until relieved by evacuations, when it rises, becomes fuller, and more equal;—an effect which, with correspondent improvement in the intellectual powers, I have often seen produced by purgatives, as well as venesection, in tropical fevers.

In this depressed state, the employment of a remedy, by no means passive, requires nice discrimination; for it is necessary to distinguish between that period of diminished energy preceding reaction, where it would prove injurious, and that in which, to use the language of Sydenham, “all the symptoms of weakness proceed from nature’s being in a manner oppressed, and overcome by the first attack of the disease, so as not to be able to raise regular symptoms adequate to the violence of the fever,” until “it could disengage and show itself” by bleeding. Vol. II. p. 351.

It is impossible, therefore, from the state of the circulation, to lay down any infallible criterion for the employment of blood-letting in fever. The safest is the hardness of the pulse, and a white tongue, as indicating inflammatory action; and, upon the whole, it was generally considered at least safe to bleed in the early stage, where the heat was increased, and the pulse above 100.

The degree of resistance of the artery against the finger was considered a better guide than the size of the pulse; if it was firm and equal, bleeding was generally proper; if easily compressed, soft, or undulating, the contrary; if it felt tense, or corded, or the stroke was described as sharp, harsh, jerking, or rebounding, it was considered indispensable; but, in using such terms, we must be aware how difficult it is to attach precise and determinate meanings to words, and that the same pulse will be described very differently by different reporters.

In speaking of the fallacy of the pulse, I ought not to omit noticing the unequal distribution and power of the circulation which not unfrequently obtain in fever, as another source of error, if we judge of its force, in the vessels near the heart, by those of the extremities; for it may be strong and bounding in the central, yet weak and languid in the distant arteries. Some marked examples of this kind occurred from exposure to severe cold for several hours in boats after depletion; in consequence of which, I grounded my application of the necessity of having a decked vessel to convey the sick to the hospital-ships. These patients, notwithstanding the application of warm blankets, &c. continued to complain of an extreme sense of chilliness with coldness, and a sunk languid pulse in the extremities, while the face was hot and flushed, and the large vessels of the neck and head were greatly excited, indicating what Mr. Hunter calls action without power, and shewing the danger, in such a case of appreciating the state of the internal circulation by that of the radial artery. This unequal and partial distribution of heat, which seems to have engaged the attention of the ancients much more than the pulse, is very unfavourable in fever; and the same is the case whenever the actual condition of the patient and his feelings are much at variance; as, for example, when he complains of a much greater degree of either heat or cold than is indicated by the touch or by the thermometer.

With respect to the comparative advantages of large or of frequently repeated small bleedings, in early fever, both plans were employed here, and with various results; the latter may be often useful and safe, where the former would be inadmissible. But, at the commencement of the attack, or where some important viscus is threatened with inflammation, I must give a decided preference to the large and sudden abstraction of blood, while there is yet any chance of anticipating or removing congestion, or of cutting short the fever. The one will, of course, be preferable while we have these objects in view; the other may be useful in mitigating symptoms where the expectation of crushing the disease can be no longer indulged. It is also evident, that the occurrence or renewal of inflammation later in fever may justify a cautious and limited detraction of blood, when the loss of a larger quantity could not be borne.

The same advantages were derived from venesection in cases of relapse. Mr. Sheppard who was surgeon of the convalescent ship, upon whose judgment I place great reliance, remarks: "From cautious experience of the advantages of blood-letting, the activity of fever often induced me to bleed largely, occasionally twice or thrice within the first twenty-four hours of the relapse. Nothing short of experience of decided benefit from this remedy could have justified the practice in that state of disease." He further observes: "Notwithstanding the advantages resulting from depletion, the blood drawn exhibited no inflammatory character."

The total amount of blood most frequently abstracted in the course of this disease has been already stated; but, in some few extremely plethoric and robust constitutions, from 100 to 150 ounces, and upwards, were taken away, with both successful and unsuccessful results. In one case of extremely violent fever in the fleet before my arrival, and where extravasation was afterwards found in the brain, I was informed that 200 ounces of blood had been withdrawn; but there are very few, if any, instances where the propriety of so large an evacuation may not be held questionable.

Like the pulse, the appearance of the blood was not a faithful index of the expediency of venesection. Though frequently, it did not generally exhibit the buffy coat; and in many cases, where it was soft and florid at first, it became firm and buffy under subsequent bleedings. However, if there was a large proportion of crassamentum, this remedy was not deemed less necessary.

In many instances the coagulum seemed soft, and as if dissolved in the serum; while, in others, the surface appeared like half-warmed jelly. In blood drawn late in the disease, or examined afterwards, the serum was often found of a firm gelatinous consistence, and of a straw colour, with not an eighth part of crassamentum, and that of a very loose texture, and of the appearance of currant-jelly. The presence of petechiæ did not prevent early depletion in this disease. On the contrary, they were obviously connected with increased excitement, and determination to the surface, and very often disappeared after, though they were not always prevented by the detraction of blood. It

is, however, necessary to discriminate between petechiæ occurring at an early, and those which sometimes appear in the last stage of fever, when the circulation is languid, and the vital powers are failing.

In estimating the general value of phlebotomy, considerable allowance ought, no doubt, to be made for circumstances, such as the season of the year, and the robust habits of the Russians; but it was also practised upon the attendants and others with similar good effects, and, the reports add, upon the old as well as the young;—an observation which I should feel considerable hesitation in receiving, without explaining that there were very few with aged or debilitated constitutions.

In a typhus fever which afterwards prevailed among the Danish and American prisoners of war, and in which a glossy and turgid appearance of the eye was often the first indication of the disease, Dr. Dobson of the Trusty informed me, that he found venesection attended with the same success as in the Russians; but, while he is firmly of belief that no other plan was equally successful, he candidly acknowledges that, in many cases, his expectations from the lancet were altogether disappointed, while, in others again, it seemed to save several who were studded with petechiæ,—a symptom that often manifested itself within thirty-six hours of the attack. After reverting to the failure of the lancet in cases where he had reason to expect success, he concludes,—“ But these failures by no means argue against the propriety of the practice, where no other measure was equally successful; inflammation was still present, and to its consequences death was, in every case, clearly proved by dissection.”

In endeavouring to account for this contrariety of result in cases seemingly analogous, the operation of moral and physical causes, and particularly the varying influence of confinement and mental depression on different constitutions, with many other considerations, ought not to be overlooked.

To those who would infer that, if fever and inflammation be so frequently connected, and follow each other in the relation of cause and effect, blood-letting ought to be more uniformly proper and successful in fever, it may be answered, that, even could its existence be always immediately ascertained, yet such is the variety in the kind and degree of inflammation, according

to the seat, nature, and period of the disease, as greatly to modify the result; for, in fact, with the exception of greater fullness of the vessels of the part, owing to the peculiarity of structure and the mutability of the animal powers, very different, and even opposite conditions, have been comprehended under this general term. It therefore by no means follows, that this operation should be indiscriminately resorted to; or, even setting aside its injudicious employment as to time or quantity, that it should be expected to prove uniformly successful in fever; for we know that this is far from being the case even in the purer phlegmasiæ, and that the diseases of this order neither always admit, nor can they be always arrested by extensive depletion. Upon the whole, however, I am inclined to think that the results were more favourable in the Russian than in the later fever; and after making all deductions, that they were amply sufficient to prove the great superiority of this mode of treatment. The whole of the medical reports, and particularly those of Dr. Douglas, concurred to substantiate the efficacy of early and decided blood-letting; and, when the many bad cases admitted into both establishments are taken into consideration, I think it may be fairly concluded, that the success was fully as great as could be expected in a disease so complicated as fever, and so often attended with dangerous congestions. Farther than I have above stated, I cannot pretend to lay down any precise directions for the employment of venesection. The difficulty of going beyond general rules for the use of a remedy whose power is so much dependent upon the fluctuating state of the animal economy under diseases, will be readily acknowledged. We must be guided by the evidence of local affection, by the nature, temper, and period of the disorder, and particularly by the actual effect produced by the operation; for, in different circumstances and persons, it will be borne with very different results, under symptoms apparently similar; hence the discordance of opinion,—the applause and censure that have attached to this remedy, since the earliest eras of medicine. What I have seen certainly authorizes me to believe that early blood-letting may be extended to cases of fever, in which it has been generally considered at least equivocal, if not prohibited. In favour of its late employment, which must ever require great caution and discrimination, and which can only be justified under

very pressing symptoms, I have nothing whatever to say beyond what is comprised in the maxim of Celsus, "*Multa in precipiti periculo recte fiant, alias omittenda.*"

In further support of these observations, I might here adduce, were it necessary, many high and well-known authorities, ancient and modern, in behalf of blood-letting in fever. But such a review would far exceed my object, which is impartially to pourtray its effects in the disease in question, not to advocate its cause in fevers in general; certainly not the indiscriminate or incautious application of this remedy, in habits debilitated by disease, intemperance, long residence in warm climates, or in unhealthy situations;—far less to countenance its rash employment late in this disorder. On the contrary, I am well persuaded that its late or injudicious use in dangerous fevers, such as those I have been most conversant with in the West Indies, would infallibly accelerate the fatal catastrophe; but, in climates where the disease is far less rapid, and where, from experience of its nature and tendency; of its pressure upon some vital organ; or of the inefficacy of other modes of treatment, we have reason to apprehend that it will run on to a fatal termination unless relieved, we are certainly warranted in making the attempt; and the success with which it was made in some of the above instances alone, is, I conceive, sufficient to justify this conclusion.

In leaving to be weighed in the varying scale of opinion the above evidence in behalf of early blood-letting, as a remedy for fever, the inference that the reverse of this proposition has often been assumed from theory, and not from experience, will probably be allowed to have some influence with the most sceptical, when it is reflected, that they who have written in its favour have practiced what they recommend; while it is hardly to be supposed that the humanity of those who are against it would permit their giving a fair trial to a measure which they believed to be injurious. In this fever, unfortunately, the cold affusion was but seldom deemed admissible, from the frequency of pulmonary, or other topical congestions.

Without entering into the different views with which epispastics have been used, they were employed with their usual good effects in mitigating pain and local symptoms; and they often proved serviceable in relieving the head at a later period of the disease.

It is, I trust, every day becoming less necessary to say any thing of the ill effects of opium, bark, or wine, in the early stage of continued fevers; in the debility left by the disease, the latter proved a most valuable and grateful cordial.

In appreciating what has been said of the effect of venesection, it should be recollected, that, in all cases, purgatives were freely used at the same time.

It is now well understood, that the value of the latter class of remedies is not limited to the mere removal of the fecal contents of the bowels, but that they may be so managed as to obviate or relieve a tendency to topical congestions elsewhere; and also to produce a considerable effect upon the general system, by the increased quantity of fluids they cause the various glands and exhalent arteries to pour into the intestines.

Thus they become not only eminently subsidiary when blood-letting is proper, but more universally useful in diseases in general, in proportion as they are more uniformly applicable.

They were here considered not only indispensably requisite in the first instance, and assisted by enemas when necessary, but they were liberally exhibited throughout the disease; and very often the bowels could not be kept sufficiently active unless they were repeated day after day. Though not a new, it is a most important observation, that all uncertainty as to the full operation of this class of remedies can only be removed by inspection without which the practitioner is very apt to be led to imagine that the patient, from his own report, or that of the nurse, has been sufficiently purged, when, at most, he may have had only two or three partial scanty dejections. There is another reason for this; purging, though oftener carried to an insufficient length, I have reason to believe, in some instances, has been pushed too far, and hence its due limits can only be ascertained by personal observation. While we are producing foul, dark, fetid, evacuations, we may naturally expect that we are benefiting and relieving the patient; but when the bowels have been freely cleansed, and the system does not require further reduction, to keep up a constant state of irritation, by purging, can only prove wasting and injurious.

On the other hand, by those that have not had much acquaintance with fevers, it is hardly possible to calculate the quantity of medicine sometimes required to overcome the torpor of the

intestinal canal ; the morbid accumulations that have been discharged, after repeated purgatives ; and, in some cases, the speediness of their reproduction.

In tropical fevers, especially, I have seen very striking examples of the abatement of fever and delirium, after the operation of purgatives ; and it is therefore of great consequence to be aware, that febrile symptoms are often maintained, or renewed, by the retention of vitiated secretions, or other morbid contents of the intestines ; as also of the quantity of dark coloured offensive matter that is often discharged, after the patient has been thought sufficiently purged, and its speedy reaccumulation, in some cases, in order to estimate the extent to which it may be necessary to persist in the use of evacuants.

The choice of purgatives was not restricted in the present fever, where the stomach was so retentive : jalap and calomel was the purge most frequently employed, and, upon the whole, perhaps, the most efficacious. The latter was found a valuable addition to other cathartics, but it was seldom exhibited with any farther view, as the biliary system was little affected, and chronic visceral derangement, as a consequence of fever, rare.

Dr. Fordyce, and other eminent practitioners, have observed that medicines of this class, when combined, occasion less sickness and pain, and are more certain in their operation, than when taken singly ; a remark in which I beg fully to coincide. A mixed purgative, I am clearly of opinion, operates more effectually, and, at the same time, more easily, and in a smaller dose, than any remedy of this description individually.

Upon the whole, although, from their general and extensive utility, purgatives claim a great superiority in the treatment of various diseases, and of fever in particular, yet their value ought not to derogate from the efficacy, nor supersede the use of other agents ; for, in the severer forms of fever, we find that blood-letting, purging, and the cold affusion, greatly, and mutually, assist each other.

Clifton, February 1816.

FOREIGN INTELLIGENCE.

PROFESSOR LOEBEL'S *Observations upon the Benefit of Insolation in different Complaints particularly in Cases of the Amaurosis.*—The physicians of former times cured different complaints by exposing the suffering parts to the action of the sunbeams, and practised this method particularly in disorders of the lymphatic system, such as different kinds of dropsy, and the gout. Professor Loebel has proved, in a dissertation, that insolation is with injustice neglected at present. According to his opinion, the effects of insolation upon the suffering organs are the following :

1. The warmth of the sun increases the activity of the lymphatic system, and of the vessels.
2. By the influx of light, the vital activity is roused and heightened both in the afflicted part and the whole body.
3. The development of oxygen, or vital air, caused by the action of the sun, also operates chemically upon the organization.

For these reasons, M. Loebel recommends insolation in the following cases :

1. In chronic anasarca, not founded upon any organic defect, where the extremities feel cold, and a general weakness and torpor appears in the lymphatic system, particularly in metastatic exanthema, after repelling the tinea capitis, the itch, or herpes, or after an ill-managed scarlatina.
2. In the chronic gout, particularly when all the organs are suffering by its long duration, when contractions, tumores ossium, and insupportable pains prevail, also where the gout leaves a partial palsy.
3. In all complaints attacking the tractus intestinorum, such as chronic spasms of the stomach, where weakness in the nervous system prevails, and in chronic diarrhœa ; as also in the fluxus cœliacus and hepaticus, in chronic catarrh and chronic erysipelas.

4. In different forms of venereal complaints, in particular during the use of mercurials, when it serves to heighten and increase the effect upon the lymphatic system and the skin.

5. In diseases of the bones, tumores ossium, and in general or partial caries.

6. In subjects weakened by immoderate venery.

7. In nervous apoplexy, and palsy of single parts.

8. In the nervous gout of the head.

9. Against aphonia, when the incapacity of speaking is transitory, and not occasioned by the destruction of the organs.

10. In the marasmus senilis.

11. In the palsy of the lower extremities, particularly where the nervi crurales have suffered, and a state of inactivity and want of irritability prevails in them.

12. In amaurosis, from idiopathic causes, and from weakness of the retina or ciliary nerves, or when a palsied state of the optic nerve produces this complaint, or when it arises from a metastasis of gouty, venereal, or itchy matter.

Contra indications of the method of cure are the following :

a. In all diseases where an exalted irritability or plethora prevails, insolation must not be applied.

b. Neither in acute violent inflammations, general or local; in affections of the lungs, which shew a disposition to inflammations, spitting of blood, or congestion.

c. Apoplexy, the nature of which consists in a congestion.

d. In hæmorrhages both of the active and passive kind, insolation is improper.

e. Insolation must absolutely be refrained from where the patient shews an idiosyncrasy or apathy against this method of cure, or by persons whose nerves, when in health, were found too sensible of the action of light or sun-beams, and who felt head-ach or vertigo on the slightest action of sun shine.

Manner of Application.—1. This method of cure must not be applied in stormy or moist weather, or when east, west, and north winds prevail. Insolation requires calm days.

2. The patient during insolation must not sit or lie on the bare ground, but a leather skin must be placed under him, as was the custom of the Greek and Roman physicians.

3. Insolation must neither be applied on an empty stomach, nor directly after dinner; but, if the complaint requires the ap-

plication during noon-tide. it is advisable to let the patient previously take a little food.

4. If insolation is to be performed on single suffering parts, the rest of the body must be covered with a white linen cloth, and only that part exposed on which the sun-beams are to act.

5. Insolation must be adapted to the different cases: in one case half an hour or an hour is requisite, in others a period of some hours: Again, in some cases the rays of the morning sun, in others the most powerful rays of noon or afternoon, are necessary, according to circumstances and individuality. In complaints of the eyes, viz. in the amaurosis. Mr. Loebel advises to shut the eye lids, and to let the sun-beams act through a half convex glass, placed upon the eyes thus shut.

Mr. Loebel gives the following directions for a particular machine which he calls a sun-bath. It consists of a box entirely constructed of panes of glass, about three feet long, nearly in the form of a hot-bed, the bottom to be of wood covered with sole-leather, the sides about three or four feet in height of panes of glass. In the upper part, an opening for the patient to put his head through; on one side a glass door by which to enter; and the bottom must be covered with very dry sand, or kitchen salt, about a quarter of a yard high. This box must then be exposed to the sun, so that the beams, thus more concentrated by the panes of glass, may produce a stronger effect upon the subject enclosed, for which reason there ought also to be small glass doors in the machine, that the degrees of heat may either be increased or lessened. The preference of this sun-bath to the usual method of insolation amongst the ancients consists in the more effectual application of the sun-beams upon the naked body, in proportion to the complaint, and according to the will of the physician; and, in case the perspiration of the patient takes place, the risk of catching cold is thereby absolutely prevented. The effect of the heat must also be far more powerful and concentrated than can be the case by pursuing the ancient method. Besides the ancient method cannot always be applied either in England or the northern parts of Germany, without risk to the patient, on account of the instability of the atmosphere; but the sun-bath recommended here may, with proper precaution, be applied more frequently and with greater confidence.

6. Finally, insolation must not be applied alone, but combined with those remedies adapted and prescribed for every form of sickness, as many cases require not only inward medicines, but also outward applications, such as frictions, &c.

Professor Loebel communicates the following remarkable cure of an amaurosis by applying local insolation.

J. S., a native of Dresden, forty years of age, had served from his nineteenth to his thirty-fifth year in the Saxon infantry, and amongst other excesses had profusely indulged in venery.

When thirty-seven years old, he suffered much from the gout, but was restored. About two years after, he was seized with nervous apoplexy, which palsied his whole right side: he was also cured of this complaint, but it left a weakness in the organs of sight, which, in 1809, amounted to amaurosis in his right eye; by his left he saw, as he expressed himself, only as through a gauze. In 1810 he consulted Mr. Loebel, who, on close examination, was convinced that this amaurosis, the consequence of a complaint in the *nervi ciliares*, was connected with a weakness general to the whole organ. He therefore gave him a number of stimulating and nervous remedies internally and locally. Among the rest, very small doses of phosphorus. Under this management, the sight of the left eye was sensibly improved, and the gauze-like film disappeared; but the right eye, notwithstanding the inward and outward application of phosphorus, remained insensible, and the pupilla remained immoveably enlarged, and paralysed. He now resolved to apply local insolation, along with the use of the following prescription:

R. Rad. Valer. Pulv. ʒijss.

Cariophyl. Arom. ʒj.

Cortex Cinnam. ʒss.

Spir. Vin. Gall. Opt. ʒiv.

To be taken a table-spoonful every two hours. For this purpose he fixed a silver wire round what is called a burning-glass, and, by means of ribbons fastened to each side, tied this convex glass upon the eye afflicted with the amaurosis; then caused the rays of the meridian sun to operate through this glass, at first, only for half an hour. He directed the patient to shut his eyelids during the insolation, and ordered the other parts of the head to be covered with a white linen cloth. The phosphoric frictions were now laid aside, but the use of the above men-

tioned medicine continued. The insolation was repeated twice a-day, for half an hour before, and three-quarters of an hour after, dinner. The patient was not suffered to open his eye-lids directly after the insolation, but only an hour afterwards, and then only in a darkened, though not quite dark, room. After having proceeded thus for a fortnight, he found the iris to have acquired more power of motion, and the patient, at the same time, complained of an itching sensation in the afflicted eye, but could merely discern the motion of the hand before the same. Mr. Loebel continued the insolation, and had the satisfaction of seeing his patient in a short time cured of his amaurosis. He could discern every object, distinguished all his acquaintances that came to visit him: however he could not read any printed or written characters, nor could all Mr. Loebel's art bring his patient so far as to enable him to read a book with his right eye.

From subsequent foreign journals we make the following extract:

A very ingenious oculist, Prof. WEINHOLD, M. D. at Merseburg has published the following remarks in recommendation of the use of Insolation upon the torpid Retina, in the Jena Literary News, Merseburg, Oct. 4, 1815.

"I fully coincide in recommending insolation through *half-convex* glasses, having, in quality of practical physician and oculist, frequent occasions to observe the danger attending the use of the common burning glass. For this reason I commonly cause large burning glasses to be cut into halves, or cover them half with black paper, by which means the dangerous focus is avoided.

Insolation proved disadvantageous in the amauroses accompanied by a heightened irritability, but advantageous in that attended with torpor, or, as the ancients say, *sine materia*, of course in the amaurosis the consequence of nervous complaints, unattended with gout, lues venerea, or psora."

Mr. LUDEWIG, surgeon at Naufung, cured a chronic inflammation of the eyes, that had lasted many years, by vaccination.

In the spasmodic complaints of a woman which did not yield to the usual remedies, cobwebs, made up with mica panis into pills, procured a lasting amendment.

DR. FRANK, in Vienna, relates the following case of a gardener's wife near Vienna, who, after having been tormented for seven whole years with an almost uninterrupted and very painful head-ach, at last had been relieved by a lucky chance. She was twenty-four years of age, not subject to any kind of sickness, when she began to be seized with a very troublesome and frequent returning head-ach, which gradually became more violent, drove her almost to despair, and extended over the whole head, even to the *maxilla inferior*. This head-ach was intermittent; sometimes the patient suffered uninterruptedly for two or three months, and at others the pain was but slight. During this period, the patient not only felt a dryness in the nostrils, but also a very troublesome sensation of an entire stoppage in those parts. The physicians being now of opinion that all possible remedies had been exhausted, she was advised by one of them only to take a pinch of snuff frequently. This soon caused a very moderate secretion of phlegm, for which reason the patient resolved to heighten the irritative power of the snuff, by mixing it with a little marjorum and assafoetida, both which articles she had in the house. Soon after the use of this sternutatory, on blowing her nose, a living worm dropped out, which, according to her description, perfectly resembled the common grub. The complaint still continuing with equal violence, she concluded, perhaps, still more worms might exist, and therefore resolved to increase the portion of assafoetida in the snuff, when, soon after, five worms more, similar, in every respect, to the above, issued from the nose; and some days after, three more made their appearance; and, in short, forty-eight worms were gradually voided through the nose, then followed a vast quantity of phlegm, and even several pieces of pseudo membranes: the head-ach was, for the most part, gone: only a painful sensation remained for some time, which, however, some months after, quite disappeared. Dr. Frank is inclined to suppose these worms had their seat in the sinus frontales, in the two antra highmorianana, and the cavum naricum, which supposition seems to be, in some measure, confirmed by the patient's feeling much pain in the ossa frontis, which induced her to take the resolution of having several teeth successively drawn. He also thinks the constant irritation of the worms in these parts might have brought on a chronic

inflammation, productive of the pseudo-membranes voided after the worms.

ACCORDING to the most recent observations of DR. MUR-SINNA, at Berlin, the efficacy of the application of bark, combined with cinnamon, in intermittent fevers, immediately before the fit is coming on, which was recommended by Dr. Nasse, has again been experienced. Mr. Mursinna treated a lady suffering, for a considerable time, under a larvated [obscure] intermittent fever, with a variety of remedies, even with the Solutio arsenicalis, though without any effect. Many relapses having taken place, Mr. M. prescribed half a drachm of bark, with ten grains of cinnamon, to be taken in wine and water, directly before the attack, which was now much shorter than before. Next day the same dose was repeated, just before the fit was expected, which was not only of very short duration, but became almost imperceptible. After the third dose, not the least attack of the fever succeeded.

PROF. KERN, at Vienna, endeavours to prove, that the operation of piercing the tympanum can only produce the wished for effect in such cases where deafness is occasioned by a too thick tympanum, immoveable ossa auditus, an entire want of the same; by a too thick immovable foramen ovale, or rather of the membranes shutting the same; or by a stoppage of the tuba Eustachii. In every other case where deafness originates in a faulty formation of the organs that are to receive the impression caused by the vibrations, or are to reflect this impression when received, the piercing of the tympanum cannot be of any avail. However, as it is but rarely hurtful, this expedient may be resorted to in dubious cases.

IN great sensibility of the feet, sand-baths prepared for them were found by DR. PURLITZ of great service.

DR. BUSSE, in Wohlau, cured an insanity, arising on the seventh day after delivery, by applying an ice-cap several times a day for six or eight minutes.

DR. MULLER has cured a palsy of the Nervi optici, from the measles, by applying the Naphta phosphorata.

DR. FRANK communicates divers observations made in Egypt upon the efficacy of the *Acidum Sacchari crudi* (*Vinaigre de Sucre*) against the scurvy. The French general-in-chief Menou ordered the raw sugar in store, for the distillation of spirits for the use of the army; but the fermentation succeeded very imperfectly, and only a very small quantity was obtained: however the residue began to ferment a second time, and turned sour. This *Acidum Sacchari* contained but a very small part of alcohol, and also a little acid, but a still greater quantity of saccharine parts; and, from its resemblance in taste to the mixture of wine, sugar, and *succus aurantiorum*, recommended by Dr. Lind in scorbutic cases, Dr. Frank prescribed it to the very numerous patients labouring under that disorder. Some, being in the very last stage of it, took eight ounces every day, which dose was afterwards increased. Divers patients, nearly on the point of death, were saved by the use of it; and, of 400 patients, only 18 died.

DR. PURLITZ relates the following case of insanity, that took place five days after a palsy of the extremities, which had grown worse by applying evacuating remedies. He prescribed *Tinctura Stramonii*, prepared from four ounces of Spanish wine, half an ounce of alcohol, and one ounce of sem. stramonii; began with six drops twice a day, which he afterwards raised to twenty-five drops. The remedy produced a sensible amendment, but not fully; and he was obliged to proceed to the *Belladonna* and *Gratiola* dissolved in *Aqua Lauro-cerasi*, according to Hufeland's method. Twenty-five drops were given three times a day of this mixture; and in about a fortnight the patient could be left without a guard. It is remarkable that the *Tinct. Stramm.* in this case produced salivation.

ACCORDING to Dr. HOHNBAUM's observations, the poisonous effects of arsenic are to be distinguished from the inflammation of the stomach by two phenomena, that never occur in the latter, viz. an involuntary evacuation of urine and stool. In cases of a genuine inflammation of the stomach, an obstruction of the bowels takes place; and an involuntary secretion of urine has never yet been observed in that complaint, on the contrary ischuria seems rather to take place. Both these symptoms, of course, sufficiently distinguish the forms of these two complaints.

Royal Society.

ON Thursday, the 21st of March, a paper by SIR EVERARD HOME was read, on the mode of action of specific medicines. From experiments already made it is known that poisonous bodies, whether mineral or vegetable, do not produce their effects upon the body till they are introduced into the circulation; and the effect always follows whenever they are introduced into the circulation. Ipecacuanha injected into the jugular vein produces instant vomiting, and opium immediate drowsiness. We know at present only two specific medicines; namely, mercury for the venereal disease, and the eau medicinale, which is a vinous infusion of colchicum autumnale, for the gout. It is well known that mercury produces its effects only when introduced into the circulation. The author gives an account of several experiments with the eau medicinale on himself and on dogs, which shows that it requires likewise to be introduced into the circulation before it produces its effects.

WE think it our duty, after the observations we made on Mr. FLETCHER'S case, to remark, that, after a very diligent inquiry, we have met with another well-authenticated account of the re-production of a nail after the excision of part of a finger. In both, however, we are a little doubtful whether the root of the nail might not have remained. The subject whose history we last learned was very young at the time the accident happened.

THE dreadful nature the disease to which the subsequent article of intelligence refers, obliges us to offer it to our readers. If not altogether satisfactory, it may lead to some further attempts at subduing the heaviest affection to which the softer sex is liable.

From the Gottingen gelchrte Anzeigen.

PROFESSOR OSIANDER, seven years ago, communicated to the Royal Society at Gottingen his method of cutting out the cancerous part of the uterus, (not the whole uterus, as some have erroneously imagined,) and thus to effect a cure of the cancer uteri. Though this operation, which he had

performed twenty-three times, always turned out successful, yet, in many cases, a very material difficulty occurred in mollifying the indurated remainder of the uterus, and reducing the same to its natural form. A few years ago, he, however, conceived the idea of combining, in such cases, both the inward and outward application of the Aqua Laurocerasi, with the operation. This remedy operated surprisingly in different cases, after the cancerous part was cut out, in mollifying the scirrhus remains, and in the re-production of a sound substantia uteri; but he never ventured to suppose that a complete scirrhus uteri, with all the symptoms of a near approach to an open cancer, such as fever, local pains, and frequent bleedings, might be cured by the above-mentioned remedy, without any operation, till he made this experiment in the beginning of 1815, in the case of a woman of weak constitution, who, from a scrofulous cause, in and after an abortus habitualis, had got a fully indurated and thickly-swelled orificium uteri, a rough and easily-bleeding uterus, attended with spasms, a febris lenta, local pains, and frequently returning hæmorrhage. This woman, greatly afraid of the operation, requested him to try every possible means without it; to which he agreed; and began the experiment by applying the Aqua Laurocerasi only outwardly, but soon added also the inward, though very moderate use of the same, together with other requisite tonic and antispasmodic remedies, according to circumstances. This application surpassed his expectation: the swelled and indurated uterus grew softer in a short time, and by degrees regained the natural form and size. The hæmorrhage ceased entirely, and the natural order of the menses again took place. The cure was begun about the middle of Nov. 1814, and was already, in the middle of Jan. 1815, so successfully completed, that the woman, to this very day, almost a twelvemonth after, is free from this complaint, and enjoys perfect health. The efficacy of this remedy naturally consists in the very powerful operation of the prussic acid contained in the Aqua Laurocerasi, the application of which requires, however, the utmost caution.

Opium.—PRUSSIC acid has been found in opium in Germany; and from this discovery it has been concluded that the narcotic virtue of opium depends on that acid.

Decomposed Opium.—A FLUID under this name has been sent to us by Mr. Battley. From our experiments, it appears to possess very extraordinary sedative powers. Fifteen drops of it, given to two adults, rendered the pulse extremely small and feeble, excited faintings, and diminished all the vital actions. In doses of from three to six drops, it allays nervous irritations, produces sleep, and has a powerful influence over spasm.

[*London Med. and Phys. Journal, and London Med. Repository.*]

A TROUBLESOME disease of corn is the cockspur, (*ergot*) or that long and pointed production which often comes in place of the grain of rye and other species of corn, (i. e. grain). M. Decandolle, Professor at Montpellier, and correspondent, has presented to the class a memoir, in which he endeavours to prove, that the cockspur is a *fungus* of the genus *sclerotium*; which assumes nearly the form of the grain, because at first it is *moulded* in the envelope of the grain. Its substance is analogous to that of the other *sclerotium*. Its growth, like that of all the fungi, is favoured by humidity. Its chemical nature is more similar to that of the fungi, than to the seeds of corn. Its smell likewise, its taste, and its poisonous properties, agree with its fungous nature. It is known, that bread made from blighted wheat occasions serious diseases: among others, the dry gangrene, so well known in Sologne, is ascribed to it. M. Decandolle, aware of the importance of destroying so dangerous a production, or at least of diminishing its propagation, conceives that this object would be obtained by obliging the proprietors in countries subject to the disease, to furnish annually a measure agreed upon, which should be burnt upon the spot.

DOMESTIC INTELLIGENCE.

Massachusetts Medical Society.

THE annual meeting of this Society was held on the 5th day of June, in the Massachusetts Medical College, for the first time. About one hundred members attended, many of whom were from remote parts of the State, and formed an assemblage very honourable to the profession they cultivate.

The Society, having heard the reading of the proceedings of the counsellors and censors, during the past year, entered on the subject of their by-laws. A revision of these laws, having been already made by the counsellors, was reported to the Society, and after discussing various parts and adopting some amendments, they accepted it. It was ordered that the revised by-laws should be printed, and a copy delivered to each member of the Society.

During the Society's meeting, a committee was appointed to wait on His Excellency Governor Brooks, as an old and influential member of the Society, to congratulate him on his election to the office of first magistrate of the State, and invite his attendance at the discourse and dinner of the Society. This invitation His Excellency politely accepted, and soon after honoured the Society with his company.

The business of the Society was closed by a discourse from Dr. Hazeltine of Berwick. The subject chosen by the orator was Phlegmasia dolens, which he treated in an interesting and satisfactory manner.

On the day succeeding the meeting of the Society, the counsellors elected by the *Society*, convened according to law, and chose for the following year these officers.

JOSHUA FISHER, M. D. *President.*

THOMAS WELSH, M. D. *Vice President.*

DAVID TOWNSEND, M. D.

AARON DEXTER, M. D.

JOSIAH BARTLETT, M. D.

WILLIAM SPOONER, M. D.

JAMES JACKSON, M. D.

} *Censors.*

JOHN C. WARREN, M. D. *Corresponding Secretary.*

JOHN DIXWELL, M. D. *Recording Secretary.*

JOHN G. COFFIN, M. D. *Treasurer.*

JOHN GORHAM, M. D. *Librarian.*

DRS. OLIVER FISKE,

ABRAHAM HASKELL,

JONATHAN OSGOOD,

AUSTIN FLINT,

JOHN GREEN,

} *Censors of Worcester District Society.*

The counsellors, among other important acts, voted to dispense, *for the present*, with that rule which precludes those, who have commenced the practice of medicine, since the new regulations of the Society, from being candidates for admission as fellows.

Winter Epidemic.

AN epidemic disease appeared during the latter part of the winter and in the spring, in the counties of Norfolk and Bristol, and some other places in this State. This disorder assumed the form of a malignant pleurisy. A few scattered cases were observed in Boston, with the following symptoms. In the most violent instances, the patient was attacked with great anxiety about the breast and stomach, attended with a death-like coldness; but in most cases, the invasion was less severe, and commenced with pain in the side or breast, succeeded by difficult respiration and cough. An expectoration soon followed, which was often peculiar, or at least different from what appears in common pleurisies. It consisted of a matter excessively thick, sometimes black, and very copious. The state of the circulation varied extremely; on one day, the pulse was slow and soft, so as to delude the practitioner, as to the existing inflammation; on the next, it became hard and quick as in common pleurisy. The seat of local disease was sometimes observed to change suddenly. The pain of the side and stricture across the breast ceased, and the stomach became painful, affected with obstinate vomiting, and its region tumid and tender. Occasionally, the inflammation shifted to the peritoneum and brought on the symptoms of abdominal inflammation. This disease terminated at very irregular periods. It sometimes continued with its full force to the ninth or tenth day.

In the cases which commenced with great coldness, warm applications and emetics were necessary on the first attack. Afterwards the treatment was that applied to common pleurisies, accommodated to the changeable nature of this disease. Venesection was practiced in every case, included in these remarks, and in every instance with sensible and immediate advantage. In weak subjects and in advanced stages of the complaint, a few ounces only of blood could be taken with safety. A patient labouring under this complaint to the ninth day, then almost insensible, with an undulating pulse, cold extremities, a livid countenance, and in short, nearly the symptoms of asphixia, from the accumulation of blood in the lungs, was immediately relieved and apparently snatched from the jaws of death by a moderate abstraction of blood.

None of the cases, included in these remarks on the complaint in Boston, terminated fatally.

Tracheotomy.

A CASE of croup occurred lately at Charlestown, in which the operation of tracheotomy was performed with such manifest advantage as to lead to the hope that, if in such instances it were resorted to sooner, the patient might be saved. The subject was a child of seven years old. She was after a slight cold, attacked with symptoms of the croup at 10, A. M.—At 1, P. M. Dr. Thompson first saw her, and soon after, Dr. Walker. Various remedies were employed, but the disease progressed so rapidly, that at 7, P. M. she appeared to be expiring. The pulse was scarcely distinguishable, the respiration had nearly ceased, the extremities were cold. Dr. Warren being called at this time, proposed the operation of tracheotomy, which was immediately performed by Dr. Thompson, at the lower part of the trachea. On first opening the trachea no relief was given, the patient being nearly dead; but on passing a probe from the trachea through the larynx to clear that part, a slight cough was brought on, and a quantity of purulent mucus thrown out through the wound. The probe was immediately passed downward into the bronchiæ; and thus excited a full cough, by which a large quantity of white matter was discharged through the wound, and then the patient began to breathe more freely. A tube was fixed in the wound and secured. The patient after this, improved every hour. The respiration became more full and regular. The pulse recovered its force. The senses of the patient were awakened, so that she knew her mother; took drink very freely; and expressed herself as much relieved, although she was unable to use her voice, in consequence of the air passing through the wound in the trachea. On the next morning she could sit up, and attended to every thing about her. Her pulse was hard, and her respiration deep and regular, though laborious. In spite of these favourable appearances, the symptoms of dissolution returned, and in the afternoon she expired, apparently from the great collection of mucus in the lungs.

A short time previously, tracheotomy was performed by Dr. Walker, for the extraction of a bean, lodged at the bifurcation

of the bronchiæ. The slight ill-consequences, the patient having recovered, from the introduction of instruments into the trachea and bronchiæ in the latter operation, served to suggest the use of the probe for the purpose of exciting the organs of respiration, in the former. The same practice might be advantageously employed in cases of suffocation from drowning, &c.

Medical Libraries.

IN the course of the present year the faculty of medicine in Harvard University have founded, by their private donations, a Library in the Medical College for the use of students in medicine. Such means have been provided for the increase of this Library, as will, it is expected, soon render it an extensive and valuable collection of books. The proprietors of the medical library, formed by the physicians of Boston about twelve years ago, having met with considerable difficulty in maintaining their library, have lately made a proposition for uniting the use of it with that of the College. This proposal was thought to be mutually beneficial, and therefore accepted by the professors. The terms of union having been settled, the Boston Medical Library has been deposited in the Medical College, and now adds nearly two thousand volumes to the collection previously made. The students of the medical class, during the following winter, will be admitted to the use of both these, as well as the Boylston Medical Library, presented to the University by Ward Nicholas Boylston, Esq. Each of these libraries possesses a distinct character.

The Boylston library is rich in ancient Greek, Latin, and Arabian authors. It contains many standard works; and is particularly valuable for a very fine collection of anatomical engravings, among which are those of Albinus, Rustachius, Cheselden, Cowper, Haller, Nichols, Fyfe, Baillie, Astley Cooper, and Loder.

The library of the Medical College contains an ample provision of elementary books, such as are useful to students attending lectures. So many copies of each of these have been procured, as to render it almost certain that every student may be supplied with a book in each of the principal departments of medical science. This library contains many standard works,

and receives all the best periodical publications of England and France, as soon as they can be transmitted.

The Boston library is composed of modern English and French books, published or re-published within the last twelve years. The statutes of this library restricting its purchases to new publications. Donations have also been made to this library of about three hundred volumes of the best standard authors.

Medical Degrees.

THE Government of Harvard University have under consideration the statutes relating to the degree of Doctor of Medicine. A complete copy of the statutes will probably be inserted in the next number of this Journal. It is understood that the proposed qualifications, to be expected of candidates, for the degree of medicine, will be principally the following.

1. Three years of study under the direction of a respectable physician.
2. Attendance on two complete courses of the professor's lectures in the Medical College.
3. A knowledge of the Latin language and of experimental philosophy.
4. A dissertation on some medical subject.

Those who apply, with these qualifications, will be admitted to an examination, entirely private, to be held during the week preceding the University commencement; and if approved, they will read their dissertations in public, on the Friday preceding the commencement, when they will be admitted to the doctorate.

Medical Lectures.

THE lectures in the Medical Institution of Harvard University will commence at the Massachusetts Medical College in Boston, on the third Wednesday in November.

Anatomy and Surgery, by Dr. WARREN,

Chemistry, by Dr. DEXTER and Dr. GORHAM,

Materia Medica, by Dr. BIGELOW,

Midwifery, by Dr. CHANNING,

Theory and Practice of Physic, by Dr. JACKSON.

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SOME ACCOUNT OF THE WHITE MOUNTAINS OF
NEW HAMPSHIRE.

BY JACOB BIGELOW, M. D. *Lecturer on Materia Medica;
and Botany, in Harvard University.*

THE terms mountain and hill are words altogether relative in their signification, and are variously used in different parts of the world, according to the experience and conceptions of those who apply them. In this country, elevations which are known only as hills, would in Great Britain assume the character of mountains; while on the other hand, our highest summits dwindle to an inferior size, when contrasted with the peaks and ridges of Switzerland, of Tibet, and Peru. The face of the country in many parts of the United States is uneven, rugged, and precipitous; its chains of highlands occasionally shoot up into eminences which are conspicuous at a great distance, and which are long and difficult of ascent. But the highest of these elevations has no claim to be considered a mountain even of secondary size, when compared with others which may be found in every quarter of the globe. The surface of the lake of Lausanne, in France, is higher than any mountain in the United States, and the City of Riobamba in Peru is built at an elevation more than twice as great.*

* Jameson's Mineralogy, Vol. III.

It is not however for their great elevation alone, that mountains become interesting to the naturalist and traveller. Those of minor or secondary size, are equally objects of curiosity, and often furnish to the explorer more satisfactory results. The mediocrity of their height renders them of course more accessible, and more susceptible of investigation in all their parts. Being short of the limits of perpetual snow, they are covered with vegetables, wherever the earth on them is sufficiently deep. The prospect from such mountains, as Baron Humboldt has observed, is far more interesting, than that from extreme elevations, where the scenery of the adjacent country is lost and confounded by the remoteness of its situation.

In the United States, exclusive, or possibly inclusive, of Louisiana, the highest point or ridge of land is undoubtedly that of the White mountains in New Hampshire. From the earliest settlement of the country these mountains have attracted the notice of the inhabitants, and of mariners along the coast, by the distance at which they are visible, and the whiteness of their appearance during three quarters of the year. They were for a long time the subject of fabulous representations; the Indians had a superstitious dread of them, and travellers who occasionally ascended their summits, returned with exaggerated reports of the difficulty and distance, as well as of the strange productions found on the more elevated parts of their surface.

The earliest account of an ascent of the White mountains is given in Gov. Winthrop's Journal, and appears to have taken place in the year 1642. This account is somewhat curious, if not otherwise, at least for its antiquity.*

* "One Darby Field, an Irishman, living about Piscat, being accompanied with two Indians, went to the top of the White Hill. He made his journey in eighteen days. His relation at his return was, that it was about 160 miles from Saco, that after 40 miles travel, he did for the most part ascend; and within 12 miles of the top, was neither tree nor grass, but low savins, which they went upon the top of sometimes, but a continual ascent upon rocks, on a ridge between two vallies filled with snow, out of which came two branches of the Saco river, which met at the foot of the hill where was an Indian town of some 200 people. Some of them accompanied him within 8 miles of the top, but durst go no further, telling him that no Indian ever dared to go higher, and that he would die if he went. So they

Within the last 40 years the White mountains have been repeatedly ascended by different exploring parties, and several accounts of their productions and phenomena have been published. The object of this paper is to detail such observations as were made by a party from Boston, who visited them in the beginning of July of the last summer.

These mountains are situated in Lat. about $44^{\circ} 15'$ N. and Long. $71. 20.$ W. from Greenwich. They are distant about 150 miles from Boston. Their Indian name according to Dr. Belknap, was Agiocochook.

Our approach to them was made from the North west, commencing at the town of Lancaster, a village situated on the Connecticut river, 25 miles from their base. From this town a road has been cut, passing through a gap of the mountains to Portland, and constituting the principal outlet of the Coos country. This road takes the course of the Israel's river, a

staid there till his return, and his two Indians took courage by his example and went with him. They went divers times through the thick clouds for a good space, and within 4 miles of the top, they had no clouds but very cold. By the way among the rocks, there were two ponds, one a blackish water, and the other reddish. The top of all was plain, about 60 feet square. On the north side was such a precipice as they could scarcely discern the bottom. They had neither cloud nor wind on the top, and moderate heat. All the country about him seemed a level, except here and there a hill rising above the rest, and far beneath them. He saw to the north, a great water which he judged to be 100 miles broad, but could see no land beyond it. The sea by Saco seemed as if it had been within 20 miles. He saw also a sea to the eastward which he judged to be the gulph of Canada; he saw some great waters in parts to the westward, which he judged to be the great lake Canada river comes out of. He found there much Muscovy glass, they could rive out pieces 40 feet long, and 7 or 8 broad. When he came back to the Indians, he found them drying themselves by the fire, for they had a great tempest of wind and rain. About a month after, he went again with five or six of his company, then they had some wind on the top, and some clouds above them, which hid the sun. They brought some stones which they supposed had been diamonds, but they were most chrystal."—*Winthrop's Journal*, p. 247.

The relation of Darby Field, may be considered as in the main correct, after making reasonable deductions for the distance, the length of the Muscovy glass, and the quantity of water in view, which it may be suspected has not been seen by any visitor since his time.

branch of the Connecticut, passing between the Pliny mountains on the left and the Pondicherry mountain on the right. The village of Lancaster is situated in a valley surrounded in several directions by very elevated ridges of land. A number of the summits in sight of this place could not be estimated at less than 3,000 feet in height, judging from the experience we had acquired of several hills of known altitude on the road, and the accounts given by the inhabitants of the time necessary for their ascent and descent.

The road from Lancaster passes through Jefferson, (formerly Dartmouth) Bretton woods and Nash and Sawyer's location, to the Notch of the mountains. This road in its course runs over the foot of the Pondicherry mountain. It lies for most of the way through thick woods but rarely enlivened with the appearance of cultivation. At Playstead's house, 13 miles from their base we had a fair view of the White Hills. They presented the appearance of a continued waving range of summits, of which it was difficult to select the highest. At Rosebrooks, 4½ miles from the Notch, the view of them was very distinct and satisfactory. We could now clearly discern the character of the summits, five or six of which were entirely bald and presented the appearance of a grey and ragged mass of stones towering above the woods, with which the sides and base were clothed. In several places we observed a broad continued stripe descending the mountain and having the appearance of a regular road cut through the trees and rocks from near the base to the summit of the mountain. On examining these with a telescope they were found to be channels of streams, and in several, the water could be seen dashing down the rocks.

Between Rosebrooks and the Notch is a plain, or rather a swamp, the waters of which pass off in different directions, partly to the Ammunoosuck, a branch of the Connecticut, and partly by an opposite course to the Saco. After crossing several brooks running towards the former, we came to another stream, the water of which was so sluggish that it required some time to become satisfied that it was actually flowing in the opposite direction. This stream has its origin in a pond of one or two acres, situated near the road, and having no other inlet or outlet. This pond appears to be the principal source of the Saco river.

The waters of this stream being collected from several sources proceed directly toward the side of the mountain. At the point where to all appearance they must be intercepted in their course, there occurs one of the most extraordinary features of the place, well known by the name of the Notch. The whole mountain, which otherwise forms a continued range, is here cloven down quite to its base, affording a free opening to the waters of the Saco, which pass off with a gradual descent toward the sea. This gap is so narrow that space has with difficulty been obtained for the road, which follows the course of the Saco through the Notch eastward. In one place the river disappears, being lost in the caves and crevices of the rocks, and under the shelves of the adjoining precipice, at length reappearing at the distance of some rods below. The Notch gradually widens into a long narrow valley, in the lower part of which is situated the town of Bartlett.

There is no part of the mountain more calculated to excite interest and wonder than the scenery of this natural gap. The crags and precipices on both sides rise at an angle of great steepness, forming a support or basement for the lofty and irregular ridges above. One of the most picturesque objects in our view was a cliff presenting a perpendicular face of great height and crowned at its inaccessible summit with a profusion of flowering shrubs.* For many miles below the commencement of the Notch the eye meets on both sides a succession of steep and precipitous mountains, rising to the height of some thousands of feet, and utterly inaccessible from the valley below. The sides of these mountains consist in some parts of bald rock, streaked or variegated by the trickling of water, in others they are covered with trees and shrubs. The occasional torrents formed by the freshets in the spring have in many places swept away the stones and trees from their course, for a great distance, and left the vestiges of their way in a wide path or gully over naked rocks.

In some instances the fire had run over the sides of the mountain, destroying the vegetation and leaving the dead trunks of the trees standing like stubble in a field, and presenting a singular appearance of desolation for some miles in ex-

* *Rhodora Canadensis*, in full flower June 20th.

tent. Several brooks, the tributaries of the Saco, fall down the abrupt declivities, forming a succession of beautiful cascades in sight of the road. We were told that the wind sweeps through the Notch at times with great violence. The lightning is said to strike frequently in the mountains from the clouds about their sides, and the sound of the thunder in this place is represented as unusually loud and severe. The report of a musket discharged in the Notch, was followed by a long echo, reverberated for some time from both sides of the mountain.

The White Hills have been ascended by various routes, from their different sides. The course which is usually considered as attended with the least difficulties, is that which commences at the plain of Pigwacket, at present the town of Conway, and follows the course of Ellis river, a northern branch of the Saco, having its origin high in the mountain.

The place of leaving the road, to follow the track of this stream is in the town of Adams, about 20 miles from the summit of the highest part of the mountain. Of this distance seven or eight miles may be rode over on horseback, the rest must be performed on foot. After leaving the borders of cultivation, our course lay through thick woods, on a level or with a gentle ascent, not much encumbered with an under growth of bushes, for six miles. The walking was tolerably good, except the circumstance of being obliged once or twice to ford the streams. Our encampment for the night, was made at the mouth of New river, a principal branch of the Ellis. This river takes its name from the recency of its origin; which happened in October, 1775. At this time, during a great flood, that took place in consequence of heavy rains, a large body of waters, which had formerly descended by other channels, found their way over the eastern brink of the mountains, and fell down toward the Ellis, carrying the rocks and trees before them in their course, and inundating the adjacent country. By this freshet the banks of the Saco were overflowed, cattle were drowned, and fields of corn were swept away and destroyed. Since that period, the New river has remained a constant stream, and at the place where it descends the last precipice, forms a splendid cascade of 100 feet in height.

From this encampment, which was seven miles from the top of the mountain, we proceeded the next day, (July 2,) two or

three miles by the side of Ellis river, on a gradual ascent, occasionally encumbered by the trunks of fallen trees. We now left the Ellis, for one of its principal branches, called Cutler's river, leading directly towards the principal summit. After climbing by the side of this stream for a considerable distance, the trees of the forest around us began to diminish in height, and we found ourselves at the second zone or region of the mountain. This region is entirely covered with a thick low growth of evergreens, principally the black spruce, and silver fir, which rise to about the height of a man's head, and put out numerous, strong, horizontal branches, which are closely interwoven with each other, and surround the mountain with a formidable hedge a quarter of a mile in thickness. This zone of evergreens, has always constituted one of the most serious difficulties in the ascent of the White Hills. The passage through them is now much facilitated by a path cut by the direction of Col. Gibbs, who ascended the mountain some years since.

On emerging from this thicket, the barometer stood at 25, 93, giving our elevation above the sea, at 4,443 feet. We were now above all woods, and at the foot of what is called the bald part of the mountain. It rose before us with a steepness surpassing that of any ground we had passed, and presented to view a huge, dreary, irregular pile of dark naked rocks.

We crossed a plain or gentle slope, of a quarter of a mile, and began to climb upon the side. There was here a continued and laborious ascent of half a mile, which must be performed by cautiously stepping from one rock to another, as they present themselves like irregular stairs, winding on the broken surface of the mountain. In the interstices of these rocks were occasional patches of dwarfish fir and spruce, and beautiful tufts of small alpine shrubs, then in full flower.

Having surmounted this height we found ourselves on a second plain. This like the first, was covered with withered grass, and a few tufts of flowers. Its continuity is interrupted by several declivities, one of which we descended to our left, to reach a brook that crosses it here, from the rocks above. There remained now to be ascended only the principal peak, the one designated in Winthrop's Journal, by the name of the *sugar loaf*, and in Belknap's New-Hampshire, by the name of

Mount Washington. This we accomplished in half an hour, by climbing the ridge to the north of it, and walking on this ridge to the summit.

If the traveller could be transported at once to the top of this mountain, from the country below, he would no doubt be astonished and delighted at the magnitude of his elevation, at the extent and variety of the surrounding scenery, and above all, by the huge and desolate pile of rocks, extending to a great distance in every direction beneath him, and appearing to insulate him from the rest of the world. But the length and fatigue of the approach, the time occupied in the ascent, the gradual manner in which the prospect has been unfolding itself, are circumstances which leave less novelty to be enjoyed at the summit, than at first view of the subject, would be expected.

The day of our visit was uncommonly fine, yet the atmosphere was hazy, and our view of remote objects, was very indistinct. The Moosehillock, one of the highest mountains of New-Hampshire, situated in Coventry, near the Connecticut, was visible on the south. The Kyarsarge, Double headed Mountains, and several others were in full view at the east. The country around in almost every direction, is uneven and mountainous. Its appearance is described by Josselyn, in his "Rarities of New-England," published in 1672, who says that the country beyond the mountains to the northward, "is daunting terrible, being full of rocky hills, as thick as mole hills in a meadow; and clothed with infinite thick woods."*

Our anticipations were not realized, in regard to several phenomena, we had been taught to expect at the summit. The state of the air was mild and temperate, so that the over coats which we carried up in expectation of extreme cold, were

* Messrs J. W. and F. Boott, who have visited the mountains since, and found the atmosphere very clear on the summit at half past 7 A. M. have favoured me with the following bearings of objects in sight. The sea, supposed near Portland S. E. by E.—Lake Winipisseogee S. S. W.—A long hill having an eminence at each extremity, said by the guide to be the highest in Vermont, W. by S. a little S.—Sebago Lake S. E. $\frac{1}{2}$ E. McMillans Inn. Conway, S. by E. $\frac{1}{2}$ E.—The second highest summit of the White Hills N. N. E. by E. This summit is separated from the one called Mount Washington, by a gulph opening eastwardly. It is very lofty, falling but little below a horizontal line obtained by a level on the former place.

left at the foot of the last ascent. The thermometer stood at 57, Fahr. on the summit at 12 o'clock, and on the same day at Conway, 25 miles distant, on the plain below, it was at 80. The snow lay in patches of an acre in extent upon the sides, but appeared to be rapidly dissolving. We were not conscious of any material alteration in the density of the atmosphere, as neither sound nor respiration were perceptibly impeded. Instead of an absence from these barren regions, of animal and vegetable life; we found a multitude of insects, buzzing around the highest rocks; every stone was covered with lichens, and some plants were in flower in the crevices, within a few feet of the summit.

The ascent from our encampment at the mouth of New river, including stops, had employed us six hours and a half. The descent from the summit to the same place, occupied about five hours. We left on the mountain our names and the date, inclosed in a bottle, and cemented to the highest rock.*

Height of the White Mountains. The great distance at which these mountains are visible, and the apparent length of their ascent, have led to estimates of their height considerably exceeding the probable truth. The Rev. Dr. Cutler, who twice visited them, and took barometrical observations, computes the height in round numbers, at 10,000 feet above the level of the sea. Dr. Belknap, in his history of New Hampshire, is persuaded, that this computation is too moderate, and that subsequent calculations will make the height even greater. Mr. Bowditch has published in the transactions of the American Academy, a logarithimic calculation founded on the barometer, as observed by Dr. Cutler and Professor Peck, in 1804, which gives them an elevation of 7,055.

* Parce, viator,
cui fulmina parcent.—
Hoc fragile monumentum
Lemuel Shaw,
Nathaniel Tucker,
Jacob Bigelow,
Franciscus C. Gray,
Franciscus Boott,
Bostonienses;
Die Julii 2do. A. D. 1816,
Monte Agiocochook superato,
hic reliquerunt.

Capt. Partridge, an engineer in the United States' service, visited the mountain some years since, and took barometrical observations on several of the principal peaks. His observations now in possession of Professor Farrar at the University, give to the highest summit an elevation of only 6103 feet.

A mountain barometer, of Englefield's construction, carried by Mr. Gray of our party, stood on the summit at noon at 24, 23; the accompanying thermometer being at 57. At the same day at Cambridge, the barometer stood at 29, 95, and the thermometer at 76. This difference of the barometer, after making the necessary corrections for temperature, and variation in the surface of the cistern, would give, according to Sir H. C. Englefield's formula, a difference of 6230 feet in the altitude of the two places. A logarithmic calculation was made, from the same data, by Professor Farrar, which resulted in a difference of 6194 feet. This number being added to thirty-one feet, the height of Cambridge above the sea, will give 6225 feet, which may be assumed as the probable height of the White Hills, above the waters of the ocean.

In favor of the correctness of the observations on which this computation is founded, it may be observed, that the barometer employed was of the most approved and modern construction, being guarded against accidents with an express view to its use in expeditions of this sort; that it went and returned without injury; and at the end of the journey agreed with other instruments at the University, precisely as it had done before its removal.

In confirmation of the present estimate, it may also be observed, that a geometrical admeasurement, taken by Dr. Shattuck and others from the plain in front of Rosebrook's house, gave to the summit an elevation of 4620 feet above that place. This being added to 1648, the barometrical height of Rosebrook's above the sea, will give a total of 6268 feet, differing only forty-three feet from our estimate.

W. Maclure, Esq. author of the geological map of the United States, informs me, that from two geometrical admeasurements made some years since on the eastern and western sides of the mountain, he arrived at results nearly similar.

Minerals. The White Mountains when viewed from the westward, present a long ridge bounded by an undulating or

serpentine line. On a near view, the outline is found to be notched and ragged, but wholly destitute of sharp cliffs and needles, or sudden perpendicular eminences. When the mountain is ascended, its uppermost or bald portion, 1800 feet in height, is found to consist wholly of a loose, irregular, disconnected heap of rocks, of all shapes and dimensions, from one to thirty feet in diameter, lying confusedly one above another, but all resting firmly in their places, having found situations where they can resist the torrents, that roll over them, in descending the sides of the mountain at certain seasons of the year. These rocks are of gneiss and micaceous schistus, or rather of an intermediate substance between the two, approaching sometimes the one and sometimes the other. The mica is abundant and brilliant, but its stratification is uneven and irregular, and often interrupted by thin strata of quartz. Owing to the irregular position of the rocks, their strata are found resting in every possible direction. Large veins of quartz very frequently traverse them, and specimens of pure mica may occasionally be obtained, the plates of which are several inches in diameter. There is nothing in the colour of the rocks, which can in any way account for the white appearance of the mountains, since they are uniformly incrustated with dark grey Lichens, which give them an almost blackish appearance. Their distant white appearance can only be accounted for by the presence of snow, which covers the summits for two thirds or more of the year. In summer, their remote appearance is blue, like that of other distant objects.

In the middle and lower parts of the mountain, the character of micaceous slate, which in the course we took, appeared to be the predominant constituent of the mountain, is more perfectly formed. The strata are remarkably smooth and even, and their fissure presents the most brilliant silvery lustre. The bed of the cascade at New River, was principally of this material, intersected by thick veins of quartz, in which were contained large crystals of schorl. The pebbles in the streams, were chiefly of micaceous slate, and occasionally of gneiss, of granite and of pure white quartz. We also met with hornblende containing traces of carbonate of lime.

The object of most of our party being botanical, and our course generally rapid, the observations and collections, we were

able to make in mineralogy, were necessarily limited. George Gibbs, Esq. who has twice ascended the mountain on different sides, with a view to the examination of its geology, has favoured me with the following remarks made by him at the time. In some places where the geology of the mountain was exposed, he found the lower strata of greenstone and greenstone slate, with some granite. Higher up, granite and gneiss prevailed. The greenstone is fine grained, containing pyrites. The greenstone-slate contains actinote. The granite contains emerald, tourmaline, white quartz and feldspar, white and reddish mica, and garnets of different sizes. The granite is distinctly stratified. The strata of these rocks are from six inches to many feet in thickness, the granite being thickest, generally two or three feet. The dip of the strata is small and from the mountain. The rock on the summit and for some hundred feet below, was gneiss, afterwards granite prevailed. Near the notch Col. Gibbs observed rocks of coarse reddish jasper and porphyry, and obtained from the inhabitants specimens of fluor spar and magnetic iron ore.

Plants. The vegetation of the White Hills has been divided with propriety, into three zones. 1. That of the common forest trees; 2. that of dwarf evergreens; and 3. that of Alpine plants.

The woods which extend from the base up the sides to the height of about 4000 feet from the sea, consist of the Rock-maple (*Acer saccharinum*), which is the most abundant tree, the Red-maple (*Acer rubrum*), the Silver-fir (*Pinus balsamea*), the Hemlock (*Pinus Canadensis*), the Black and White-spruce (*Pinus nigra et alba*), the White-pine (*Pinus strobus*), the Beech (*Fagus ferruginea*), the Black, Yellow and White-birch (*Betula lenta, lutea, and papyracea*.) The undergrowth was composed principally of the *Viburnum lantanoides*, the *Acer montanum* and *striatum*, and *Sorbus Americana*. Under our feet was the *Oxalis acetosella* beyond every other species of plant, *Dracena borealis*, *Cornus Canadensis*, *Gaultheria hispidula*, &c.

Where the common forest trees terminate, the second zone of the mountain immediately commences, the line between them being very distinctly drawn. This region consists of a belt of the black-spruce and silver-fir, rising to the height of seven or eight feet, and putting out long, firm, horizontal, or depending branches, so that each tree covers a considerable extent of

ground. This mode of growth may be ascribed to two causes : 1. The great length of time that the snow rests upon them, weighing down their branches, and confining them in an horizontal direction. 2. The extreme cold which probably prevails here in winter, and which is destructive to all vegetation, that is not secured by being buried under the snow. Upon the ground under these evergreen trees, there were but few other vegetables. The only plants which I recollect in flower were the *Houstonia cœrulea* uncommonly large, and *Cornus Canadensis*.

Above the zone of firs, which terminates as abruptly as it begun, is a third or bald region wholly destitute of any growth of wood. The predominance of rocks on this portion, leaves but a scanty surface covered with soil capable of giving root to vegetation; yet to the botanist this is by far the most interesting part of the mountain. Many of the plants of this region, are rare, and not to be found in the region below. They are for the most part natives of cold climates and situations, such as are found in high latitudes, or at great elevations. Among them are natives of Siberia, of Lapland, of Greenland and Labrador. Vegetables of this race, usually known by the name of Alpine plants, have always been found difficult of cultivation. They are impatient of drought, and of both the extremes of heat and cold. During the severity of the winter, in their native situations, they are preserved from injury by the great depth of snow, under which they are covered, which secures them from the inclemency of the air, while they partake the temperature of the earth below them. When the snow leaves them, which frequently does not happen till the middle of summer, they instantly shoot up with a vigour proportionate to the length of time they have been dormant; rapidly unfold their flowers, and mature their fruits; and having run through the whole course of their vegetation in a few weeks, are again ready to be entombed, for the rest of the year, under their accustomed covering of snow. These plants, notwithstanding the high and barren elevations at which they frequently grow, do not suffer for want of moisture, being constantly irrigated by the clouds which embrace them, and by the trickling of water over their roots from the eminences above.

The following list contains most of the plants, which we found on the uppermost or bald portion of the mountain. For a considerable increase of the collection, I am indebted to my friend,

Mr. F. Boott, whose botanical zeal induced him to undertake a second visit to the summit in August.

<i>Abies nigra</i> . L. <i>nana</i> .	In flower.
<i>Abies balsamea</i> . L. <i>nana</i> .	
<i>Aira melicoides</i> . <i>Mx.</i> - - -	August 25.
<i>Arenaria glabra</i> . <i>Mx.</i> - - -	August 25.
<i>Arenaria</i> seu <i>Stellaria</i> ,— <i>caule anguloso</i> ; <i>foliis oblongis, acutis, enervibus</i> ; <i>pedunculis solitariis elongatis</i> ; <i>floribus apetalis</i> .	August 25.
<i>Azalea Lapponica</i> . L. - - -	July 2.
<i>Azalea procumbens</i> . L. - - -	July 2.
<i>Bartsia pallida</i> . L. - - -	August 25.
<i>Betula lutea</i> . <i>Mx. nana</i> .	
<i>Campanula rotundifolia</i> . L. - - -	August 25.
<i>Cardamine rotundifolia</i> . <i>Mx.</i> - - -	July 2.
<i>Carex curta</i> . <i>Willd.</i> - - -	August 25.
<i>Carex cœspitosa</i> . L. - - -	July and August.
<i>Coptis trifolia</i> . <i>Salisb.</i> - - -	July 2.
<i>Cornus Canadensis</i> . L. - - -	July 2.
<i>Diapensia Lapponica</i> . L. - - -	July and August.
<i>Epilobium alpinum</i> . L. - - -	August 25.
<i>Empetrum nigrum</i> . L. - - -	August 25.
<i>Geum Peckii</i> . <i>Pursh</i> - - -	July and August.
<i>Holcus monticola</i> — <i>glumis trifloris, hermaphrodito intermedio diandro, masculis lateralibus triandris, valvulâ exteriori dorso aristata</i> .	July 2.
<i>Houstonia cœrulea</i> . L. - - -	July 2.
<i>Juncus melanocarpus</i> . <i>Mx.</i> - - -	July 2.
<i>Juncus spicatus</i> . L. - - -	August 25.
<i>Kalmia glauca</i> . L. - - -	July 2.
<i>Ledum latifolium</i> . <i>Ait</i> - - -	July and August.
<i>Lycopodium lucidulum</i> . <i>Mx</i>	
<i>Melica triflora</i> — <i>villosa, panicula coarctata, glumis trifloris, corpusculo accessorio ; flosculis aristatis</i> .	August.
<i>Menziesia cœrulea</i> . <i>Swz. (Erica, Willd.)</i>	July 2.
<i>Oxycoccus vulgaris</i> . <i>Pers.</i> - - -	July and August.
<i>Polygonum viviparum</i> . <i>Willd.</i> - - -	August 25.
<i>Potentilla tridentata</i> . <i>Ait.</i> - - -	July.

- Rubus saxatilis*. L. - - - August 25.
Salix repens. Willd. - - - July 2.
Scirpus obtusus—*Culmo tereti, nudo, monostachyo* ; *spica lanceolata, squamis apice carnosius, obtusis*. - - - July.
Scirpus bracteatus—*Culmo tereti, monostachyo* ; *spica ovata, acuta, bracteis involucreta* ; *flosculis monandris*. - - August.
Spiræa alba. Ehr. - - - August 25.
Solidago multiradiata. Ait - - - August 24.
Sorbus americana. Willd. *nana*
Vaccinium tenellum. Ait - - - July 2.
Vaccinium gaultherioides—*prostratum, foliis obovatis, integris* ; *floribus subsolitariis* ; *baccis oblongis, stylo coronatis*. - - July 2.
Veratrum viride ? Wild. *s. fl.*
Lichen velleus, rangiferinus, pyxidatus, cocciferus, Islandicus, cornutus, & alii plures.

Indeterminatæ *Salix* 1. *Poa* 1. *Menziesia* ? 1.

The vegetation in spots extended quite to the top of the mountain. *Diapensia Lapponica* and *Lycopodium lucidulum*, the former in full flower, were growing within six feet of the summit. All the rocks were incrustated with Lichens, among which *L. velleus* is the one which predominates, and contributes essentially to the dark grey appearance of the mountain.

In the foregoing list of vegetables, it will be seen that a considerable number of species are natives of Europe, as well as of this country. A question of some interest has arisen, whether any plants are originally common to both continents,* and whether those species which approach each other so nearly in their external characters, as to be known at present by the same names, are in reality the same species. The analogy of the animal kingdom seems to favour the negative of this question. Baron Humboldt has asserted upon the highest authorities, that no quadruped, or terrestrial bird, and even no reptile or insect, has been found common to the equinoctial regions of the old and new world. In like manner he affirms that the phanerogamous plants, which have been recognized as natives

* Humboldt.—Memoir on the distribution of vegetable forms.

of the tropical regions of both continents, are extremely few. In the temperate zones, the number of American plants which wear European names, is continually diminishing in books. The separation of them, has in some instances been carried further than a strict adherence to the present grounds of botanical distinction will justify. Yet there still remain species wholly agreeing in their botanical characters, but sufficiently differing in their qualities, places of growth, times of flowering &c. to render it not improbable that they are distinct. A species of *Æthusa* grows about Boston, which externally bears, the strictest comparison with *Æthusa cynapium* of Europe. It is however altogether destitute of the nauseous or garlic taste for which that plant is noted. *Menyanthes trifoliata* in New-England, flowers a month earlier than in Great Britain, though our seasons are perhaps always more backward. Botanists have not yet distinguished the chesnut tree of this country from that of Europe, although its wood is weak and brittle, and never used, as in Europe, for hoops and other purposes, where strength and tenacity are required. On grounds like the foregoing, a great number of vegetables which have not emigrated to us since the discovery of America, and which are not found far to the north of us, may be suspected of being really distinct in nature from those which nearly resemble them in Europe, and are known by the same names.*

* Still we should strictly beware of hastily changing names, and establishing new species on slight or doubtful distinctions. Botany at present, knows no other mode of distinguishing plants, than that by their external forms, and to this, in the present state of the science, we must rigidly adhere. If an American plant cannot readily be distinguished from an European, by a clear specific character no harm can ensue, and much confusion may be avoided, by suffering it to remain as a variety, under that same specific name. A zeal for the discovery and establishment of new species, however laudable in its general object, has been productive of much mischief to the Botany of this country. We have had many specific names founded in varieties, and many accompanied with hasty and imperfect descriptions, which leave it doubtful whether they refer to species or varieties. Different Botanists without communication or intercourse with each other, have described the same plants under different names, and different plants under the same names in various parts of the country. There is at present, no greater obstacle to the progress of Botany here, than the load of uncertain synonyms, doubtful species, and superfluous names with which many of our best books are encumbered.

But as we approach toward the north, and arrive in high latitudes, the probability of finding plants identically the same, is greatly increased. About the arctic circle, the two continents approach each other so nearly, and are so connected by ice during part of the year, that they may, as far as botany is concerned, be considered the same country. The same plants may be equally disseminated on both, and these may extend as far toward the south as the general coldness of the climate suited to their constitution continues. Beyond this they may for some distance be found in alpine situations on the tops of the highest mountains. There are also plants of such versatility of constitution, that they bear all the varieties of climate from Hudson's Bay, to Virginia, and Carolina. Such plants may well be common to the two continents.

Animals. The unsettled state of the country for some distance around these mountains, the many recesses and solitudes which they possess, that are rarely visited by man, has rendered them still a resort for many of the original animals of the continent, whose species have nearly disappeared from the more inhabited parts. The moose (*cervus alces?*) still resides here, and we were told, that upon the Pliny mountains, about twenty miles to the N. W. some of these animals are killed in the course of every winter. The bear (*ursus Americanus*) inhabits the woods about the base and sides of the mountain, where he is not unfrequently met with.* The wolves (*canis lupus*) being gregarious, move in troops, and are said to visit this part of the country once in three or four years. Several of them were killed last winter in Eaton, a town adjoining the mountains. The wolverene, (*ursus luscus*) raccoon, (*ursus lotor*) porcupine, (*hystrix dorsata*) and sable, the two latter in considerable numbers, are found in various parts of the forests; the wild-cat (*felis montana?*) is occasionally killed here; the catamount (*felis concolor s. cougar*) is at the present day seldom heard of.

Of Birds, we saw but few. Most of our migratory land birds choosing to share with man the fruits of his cultivation, are

* Our guide informed us that one had been in his enclosures the week preceding our visit.

more frequently found about the abodes of civilization, than in the solitude of the forest. In Bretton woods several woodpeckers were shot by our party, all of them very beautiful species, and among the rest *picus tridactylus* remarkably distinguished from the rest of his family by the number of his toes. The partridge (*tetrao umbellus*) we frequently scared. This bird, as well as a species of plover or of *tringa*, have been seen in the upper or bald part of the mountain.

We were told by the people in Bartlett and Conway, that the rattlesnake (*crotalus horridus*) infests the rocks and sides of the hills in great numbers, and that twenty of these reptiles had been killed in a day. They even approach dwelling houses, at the doors of which they have been killed. The inhabitants regard them with little apprehension, since they are represented as slow and clumsy in their motions, and as always giving notice on being approached, by a loud and long continued rattle, resembling very much the singing of a locust. We saw none of these serpents, and heard of no injury sustained by any one from their bite.

The insects which we observed at the top of the mountain, were as numerous and various as in any place below. Among them were species of *Phalæna*, *Cerambyx*, *Coccinella*, *Buprestis*, *Cimex* and *Tenthredo*. The most splendid of our native butterflies *Papilio Turnus*? was fluttering near us while we remained on the summit.



CASE OF AMPUTATION OF A PART OF THE FOOT, WITH REMARKS.

BY GEORGE HAYWARD, M. D.

THERE is no particular description, I believe in any system of Surgery, of the method to be pursued in amputating a portion of the foot. This is the more remarkable, as the bones of the tarsus and metatarsus are often so much diseased from frost, and other causes, as to require removal. To do this without amputating the whole foot, is extremely important to the patient. In the "Practical Observations in Surgery" by Mr. Hey, of Leeds, there is an account of two cases, in which he performed

this operation, in a manner so novel and ingenious, that surgeons in Great Britain, and this country, have given him the credit of inventing it, and the operation is now known by his name. The merit however, of his invention, consists only in the manner in which he covered the stump, as the method of amputating at the articulations of the foot, is described by M. Brasdor, in the XVth Volume of the Memoirs of the French Academy of Surgery. Prior to the publication of this memoir, it was almost the invariable custom of Surgeons, to amputate above the ankle, for diseases of the tarsus and metatarsus. But since that period, operations at the articulations of the foot, have become frequent, though rarely at any other part, as Surgeons seem to be apprehensive that if they are performed by sawing through the bones, the violence done to them will be so great, that exfoliation will generally ensue. Richerand, Dupuytren and Roux, have each given directions by which the articulations may be found; and it appears, by the analysis of the labours of the class of Physical Sciences of the Institute of France, for the year 1815, that still further rules have been laid down by M. Lisfrane St. Martin, in a memoir read to that body during the year. This desire to point out the precise situation of the articulations, proves that it was considered important, that operations should be performed at those places.

The following case is related, merely to shew that exfoliation does not necessarily take place, when the bones are sawed through, and if the same result should generally be found to follow, it is evident, that in many cases of diseased foot, such as where a small portion only of the tarsal or metatarsal bones is affected, this operation can be used with more advantage to the patient and more ease to the operator, than even that of Hey.

CASE.

Benjamin Kellum, aged about 30, had for five years laboured under a disease of the bones of the foot, originally occasioned by frost. During that period, various attempts to cure it had been made by different Surgeons without effect, and amputation had been repeatedly recommended, but the patient was unwilling to submit to it. A short time, however, previous to the operation, the pain was so great, and his health had become so much impaired, that he was desirous of having the diseased parts removed. When I examined the foot, I found that on the

upper surface, there were two small openings, through which there was a considerable discharge of bloody pus; and by passing a probe into either of them, it came into contact with the cuneiform bones which were denuded and diseased at their union, with the metatarsal bones. It was evident, from the state of the parts, that it was impossible to perform the operation recommended by Hey, of disarticulating the foot at the junction of the tarsal and metatarsal bones, and sawing off the projecting portion of the cuneiform bone of the great toe. The operation was therefore performed in the following manner. An incision was first made across the foot, as near the diseased parts as possible. The knife was then passed between the bones and muscles on the under part of the foot, and brought out at the opposite side; it was then carried down to the first joint of the toes, so as *completely to separate* the integuments and muscles from the bones. The integuments at the first incision were then dissected up about half an inch, and the bones, sawed through at that place. The under flap not being yet divided, the anterior part of the foot was raised up, so as to be able to determine how much flap it was necessary to save. This being ascertained by bringing the muscles and integuments in contact with the stump, the diseased part of the foot was removed; the anterior tibial artery, being the only one that required a ligature, was tied, and the flap was secured in its place by two stitches. The stump was dressed in the ordinary manner. For the first ten days, every appearance was favourable; healthy pus was secreted, considerable adhesions had taken place, and at the end of that time, the ligature from the artery and both the stitches had come away. A day or two after this, the patient complained of pain on the inner ankle, the part was red and considerably swelled. Applications of lead water were made to it, but in about three days from its first appearance, it was found necessary to open it, when it discharged a large quantity of pus. For five weeks from this time matter continued to form on the outer and inner ankle, and four openings were made to evacuate it, one of them nearly six inches above the place where the operation was performed. The discharge became so great, that the patient's health, which was feeble before the amputation, declined rapidly, and the edges of the wound, discovered no disposition to unite. Powder of Bark, and Wine

in large quantities were given, and the patient was put upon a generous diet. In a short time his health was improved, the discharge diminished, and the edges of the wound were considerably united, so that in nine weeks from the operation, the stump was healed, excepting in three places, about the size of a small pea, from which there was a pretty copious discharge, for two months longer, of pus and serum. This however abated, and in a short time yielded so far to friction, compresses and the application of cold water, that at the expiration of five months, there was only a small opening, from which a few drops of serum were discharged every day. About this time the patient began to bear more weight on that leg, and by the assistance of a half boot which supported his ankle, he was soon enabled to stand and walk with firmness, ease and security. At first he was compelled to use a crutch, and he now makes use of a cane, though he can walk tolerably well without one. The last opening closed a few weeks after he began to walk, so that the cicatrix is now firm in every part. His health is much better than it has been for five years.

Though the bones proved upon examination, after the operation* to be very much diseased, there was no exfoliation. It is probable, that if amputation had been performed some years before, the stump might have been healed in a few weeks; but as the secretion of pus had continued so long, it was difficult to overcome the morbid action of the vessels.



MORBID ANATOMY.

Case of Chronic Diarrhœa, accompanied by the discharge of some peculiar substances.

BY DR. JEREMY STIMSON, OF DEDHAM.

MARY-ANN CLAP came under my care on the 6th of May, 1816; at which time she was ten years of age. Her disease commenced in July, 1814, and had continued from that period with great uniformity of symptoms. She had had a constant diar-

* I performed the operation at the Boston Alms-House, January 7th, 1816.

rhæa, having had from four to six or eight dejections daily, without an intermission, for twenty-four hours. The discharges had at some times been attended with pain, but this had never been severe. Her appetite had been great during the whole period, and within a few months past it had been voracious, so that she had consumed as much food as would have served two or three healthy men. She had, notwithstanding, a faintness at the stomach, which was relieved only for a short time after eating. It appeared from her evacuations that her food was not well digested. During her sickness she had been very gradually losing flesh; and as far as could be judged from her clothes, she had not increased in height. Her strength had not been so much impaired as might have been expected; she had not been confined, and had even attended school most of the time until within a few weeks. She had taken many simple medicines, but without benefit. She had within a week taken a powerful cathartic, which seemed to have been useful.

Such was the account which I received from her mother at my first visit. Her countenance was now pale and sickly, pulses rather feeble, and as I judged about ninety in a minute. Her tongue was slightly coated. Her abdomen was enlarged. Her appetite had been somewhat diminished, and the diarrhæa checked since the use of the cathartic. Influenced partly by the effect of that remedy, I directed a dose of jalap with submuriate of quicksilver, and requested the mother to examine the discharges carefully.

On May 8th I was informed that the medicine had operated powerfully, and that it had brought off a number of white substances with much dark gelatinous matter. The white substances were said to be about two thirds of an inch in length, and from the description, I was led to believe that they were portions of a tænia. Afterwards when I had an opportunity of examining these substances, I found them to differ altogether from the joints of the tape-worm. They were of various forms and sizes, some not larger than a pea, others as large as a filbert. Some of them were nearly spherical, but they were mostly in a form nearly resembling a bean. Their composition was homogeneous, and it was evident that they were not organized bodies. They were firm substances, and when cut they appeared to resemble tough new cheese more nearly than any

thing else. I was induced to think however that they consisted of coagulable lymph rolled up, although they were more dense than this substance commonly is. On one of them was perceived a slight red speck. Examining this with a magnifying glass, it was found to arise from a little dot of blood, and this extended into the substance for a little distance, as if a small vessel had penetrated it and had been broken off.

At first the disease was treated as a case of *tænia*. Half an ounce of oil of turpentine was given, and this was followed by a cathartic. Hundreds of the white substances were thus brought off. As the patient's strength was very little reduced by these remedies, and her symptoms rather mended, the cathartic was repeated two or three times during May and June. Under the operation of those medicines, many more of these substances were discharged, and indeed they appeared in the stools also at other times.

In consultation with Dr. Jackson of Boston, it was agreed that these peculiar substances must probably be formed in the intestines, in consequence of a morbid state of some part of the mucous membrane. Under this belief it was agreed to administer small doses of submuriate of quicksilver and tartrate of antimony with opium at night for a short period, and then to try the phosphate of iron; at the same time to allow a nutritious diet, and to enjoin daily exercise. Although my patient's strength was now reduced, she bore riding very well, and derived great pleasure from it. It was agreed that if she continued to lose strength under the course prescribed, without decided relief as to her principal complaints, the medicines should be omitted. She did lose strength under this course, her appetite diminished, and her diarrhæa increased, so that after a few days the medicines were omitted. There was also some change in her symptoms which influenced this decision; for on the 5th July there supervened a violent spasmodic cough, which lasted an hour and a half, and was at last arrested by an anodyne. On the following night she had an ague-fit. The discharges on the 6th were frequent, and of a cream colour. She then took tincture of kino with tincture of opium. On the 7th she had a soreness or pressure in the epigastric and right hypochondriac regions, for which the part was vesicated. On the 8th she had violent tenesmus, which was relieved by an enema of starch.

with tincture of opium. From this time she failed rapidly, her diarrhœa continuing, until the 15th, when she expired.

On the morning after death I examined the cavities of the thorax and abdomen. The lungs were healthy in their appearance, but the left lobe adhered extensively to the pleura costalis. The heart was rather small, but healthy; the pericardium contained a little more fluid than usual.

On viewing the viscera of the abdomen *in situ naturali* the following circumstances were noticed. The omentum was small, and destitute of fat. The small intestines were of their natural colour and had their usual polish. The large intestines appeared more dark-coloured than usual, particularly certain parts. These were the cœcum, the first portion of the colon, in extent about five or six inches, and its latter portion, in extent about three or four inches. In these parts the vessels seemed filled, as if by injection; but the peritoneal coat had its usual polish. The liver was larger than natural and extended quite into the left hypocondrium. Its right lobe was thickened, and was both more hard and more dark-coloured than the left lobe. The gall-bladder was full and of its natural form; its duct and those connected with it were pervious. The spleen and pancreas appeared in all respects sound.

The alimentary canal was laid open through its whole extent, except the gullet. The stomach contained air with a dark-coloured fluid, not offensive in smell and in quantity about half a pint. The small intestines contained a fluid not very dissimilar to that in the stomach, except that in the lower part of the ileum it had more consistence, and resembled dark, moist clay. Through the small intestines there was not any vestige of disease, except that the valvulæ conniventes were preternaturally pale and destitute of mucus. On laying open the large intestines there were evident marks of disease. These were seen in the cœcum and in the first and last portions of the colon. In these parts the mucous membrane was very red and much swollen, the surface was rough, but did not exhibit any appearance of ulceration. The diseased portions of the intestines felt nearly as thick again as the healthy portions. The inflammation extended all around the bowel and terminated abruptly. The large intestines contained a dark coloured matter, similar to that which the patient had voided for some days

previous to her death. One of the mesenteric glands was enlarged and indurated.

It is worthy remark that there was not found, in any part of the alimentary canal, any thing resembling in the smallest degree the peculiar substances, which the patient had discharged so abundantly during life.

SOME ACCOUNT OF IODINE.

BY J. FREEMAN DANA, A. M.

THE following account of Iodine is collected from various notices, which have appeared in different foreign journals, and from experiments which I have had an opportunity to make on this curious substance. Many of the experiments which have been made by the European chemists, have been repeated with great interest. For a full history of iodine, I refer the reader to that able memoir of Gay Lussac, in the *Annales de Chimie*, for July, 1814, a translation of which may be found in Thompson's *Annals of Philosophy*, vols. 5 and 6, and to the papers of Sir H. Davy, in the *Philosophical Transactions* for 1814. As soon as the account of the discovery of this substance reached Boston, I endeavoured to procure materials for preparing it, and fortunately found some barilla at the glass-house, with enough of which, I was politely supplied by Mr. Thomas Chase, then clerk to that manufactory. From this some iodine was prepared, and was exhibited by Professor Gorham, to a society of philosophical gentlemen in Boston, and was probably the first ever prepared in the United States. Since June, 1814, I have employed every opportunity in some experiments on this body.

Iodine was discovered accidentally by M. Courtois, in 1811; this gentleman has an extensive manufactory of salt-petre in Paris, and found, in his process for procuring soda from the ashes of sea-weeds, that his metallic vessels were much corroded, and searching for the cause, made the discovery; he observed several of its properties, especially that of forming a fulminating compound when treated with ammonia; but from the attention required by his manufactory, he was unable to pro-

secute his inquiries, and therefore committed it to some of the French chemists, who pursued the examination of it, and have done honour to their undertaking.

Various methods for obtaining this substance were given in the N. E. Journal for July, 1814; the following processes will be found very simple and easy.

1. Dissolve the barilla or black-ash of commerce, in water, and gently evaporate until no more crystals appear; decant the liquid and evaporate to dryness in a bason of Wedgewood's ware; the salt thus procured should then be fused, and afterwards broken into coarse powder; introduce the powdered salt into a deep tubulated retort, with a short neck, and adapt a large receiver; pour over the salt highly concentrated sulphuric acid, and iodine immediately appears in the form of a beautiful violet coloured vapour; apply a gentle heat, and the iodine passes to the receiver, where it is condensed. A smell resembling hydrochloric (muriatic) acid is perceptible; this arises from a small portion of common salt, remaining attached to the mass in the retort, and from a peculiar acid (the hydroiodic) to be hereafter noticed.

2. Another method by which rather a larger quantity may be obtained, is given by the Dr. Wollaston. Dissolve kelp in water, concentrate the solution by evaporation, and separate all the crystals that can be obtained; pour the remaining liquid into a clean vessel, and mix with it sulphuric acid in excess, and boil it for some time; sulphur is precipitated and muriatic acid evolved; decant the clear liquid and strain it through wool; put it into a small flask and adapt a tube closed at one end, previously putting into it as much black oxide of manganese as you added before of sulphuric acid; apply a gentle heat, and iodine sublimes.

PROPERTIES OF IODINE.

Iodine in a solid state, is crystallized, having a colour and lustre similar to plumbago; the form of the crystals, as ascertained by his ingenious reflective goniometer, is that of an octahedron, whose axes are to each other in the ratio of 2, 3 and 4. This form, says Dr. W. most frequently appears in a section of the octohedron parallel to a plane of its greatest and least axes, presenting to view a rhombic plate, bevelled at each edge by two narrow planes, which are inclined to each other at an angle of

12½°. Its odour is similar to that of chlorine, but not so suffocating; taste very acid; water dissolves about one seven thousandth of its weight, and acquires a yellow colour; it stains the skin brown, but the colour is soon removed; it destroys vegetable colours, but not so rapidly as chlorine; specific gravity 4,948, at 62½°; it is a non-conductor of electricity; it possesses a negative electrical energy with respect to metals, inflammable and alkaline substances, but is positive with respect to chlorine; for when united to chlorine (as in an acid compound to be mentioned) it separates from it at the negative surface in Voltaic arrangements. At the temperature of 225° it melts, and under common pressure of the atmosphere is volatilized at about 340°; this was ascertained by Gay Lussac, by putting iodine in excess into sulphuric acid, and observing at what temperature the vapour passed through the acid. Iodine when mixed with water, may be distilled over with that liquid; its vapour mixes with that of water at 212°, and it may be distilled at a lower temperature even; the same thing happens to the essential oils, they boil at the temperature of 309°, but may be distilled with water at 212°.

From all the experiments made on this substance, it is considered as an undecomposed body, as a supporter of combustion, and analogous to oxygen and chlorine.

OF THE COMPOUND OF IODINE AND OXYGENE.

This compound was first obtained in a separate state, by Sir H. Davy; he formed it by causing a current of *euchlorine* to act on iodine, a combination took place, and a solid body formed, which consisted of a compound of iodine with oxygen, and of chlorine with iodine, called *chloriide*, which will be noticed below; when the substances formed by this action were exposed to a gentle heat the *chloriide* was driven off, and the *oxide* remained behind; it has the following properties; it is a solid of a white colour; of considerable specific gravity, as it sinks in sulphuric acid; astringent taste; dissolves rapidly in water, forming a colourless solution, which has acid properties; when exposed to heat oxygen is evolved, and iodine remains; it first reddens vegetable blues and then destroys them. The name *iodic*, or rather *oxiodic acid*, has been given to it, and it is probably composed of one proportion of iodine, and five of oxygen.

The compounds formed by this substance with different bases, were discovered by Gay Lussac, although he failed in his attempts to procure it in a separate state; he however calculated the composition of it with great accuracy, and inferred from his experiments, that it consisted of 100 iodine combined with 32,0085 oxygene, that is to say oxiodic acid contains five proportions of oxygene. Oxiodic acid has the property of combining with different bases, and of forming with them a peculiar class of salts, called iodates or oxiodes; it also possesses the property of combining with various acids, and forming solid compounds, which for the most part are susceptible of crystallization. When dropped into sulphuric acid, a solid substance falls, which melts when heated, and on cooling crystallizes into rhombs of a yellow colour; according to Davy it is composed of twenty oxide, and eight sulphuric acid, he considers it as a hydrate; one proportion of iodine, one sulphuric acid and two water. The two acids of phosphorus, nitric and oxalic acids also form peculiar compounds with the oxiodic acids. Oxiodic acid dissolves gold and platinum; no other compound of oxygene and iodine have yet been discovered.

OF IODINE COMBINED WITH CHLORINE.

When chlorine is brought into contact with dry iodine, it is rapidly absorbed, producing a temperature equal to boiling water. There appear to be two compounds of chlorine and iodine, the one of a yellow, and the other of an orange red, to these Gay Lussac has given the name of chloruret and sub-chloruret of iodine; there does not appear any evidence, that they are two distinct compounds, since the sub-chloruret may be easily formed by the addition of iodine to the chloruret, and may be again precipitated by an alkali, so it is probable that this compound of chlorine and iodine, called *chlorionic acid*, may hold a variable quantity of iodine in solution, and thus the colour of the supposed "sub-chloruret" may become deep, according to the quantity of iodine it contains.

Chlorionic acid rapidly deliquesces in the air, forming a colourless solution, which becomes coloured on exposure to strong light, or to a gentle heat, chlorine being evolved, and iodine being dissolved by the remaining liquid.

Chlorionic acid discharges the colour from a sulphuric solution of indigo; when acted on by an alkali it suffers decompo-

sition; oxiodic and hydrochloric acids are formed, which combine with the alkali.

When we wish to obtain it free from iodine, we pass a current through a dilute solution of iodine in the acid, and exposing it for some time freely to the sun; the product is a very acid colourless liquid, from which iodine is abundantly precipitated by ammonia.

Is it not probable that the liquid acid may be a mixture of oxiodic and hydrochloric acids, and that water may suffer decomposition when the solid chlorionic acid is added to it? Since we obtain an acid of precisely similar characters, when we mix oxiodic and hydrochloric acids, and moreover the latter are much more stable compounds than the former, and *ceteris paribus*, strong compounds are formed in preference to weak.

Chlorionic acid is very volatile, but in consequence of its rapid action on mercury, the elastic force of its vapour has not been ascertained; iodine absorbs less than one third its weight of chlorine, and chlorionic acid probably consists of one proportion of iodine and one of chlorine.

OF THE COMPOUND OF IODINE AND HYDROGENE.

This compound may be obtained, in a gaseous form, by various methods, by the action of hydrophosphoric acid on the iodate of potash, or by the action of phosphorus on moistened iodine, or by moistening the ioduret of phosphorus; the gas evolved may be condensed in water. The most eligible method of procuring it in a liquid state is, to dissolve iodine in water, and pass a current of sulphuretted hydrogen through the solution, sulphur is precipitated, and the hydrogen combines with the iodine; or dissolve the ioduret of phosphorus in water, and separate the compound of hydrogen and iodine from the phosphoric acid by distillation. It is called *hydroionic gas* or *acid*; when the gas comes in contact with mercury it is decomposed, and if a volume of it be agitated over mercury a few minutes, a solid body of mercury and iodine is formed, and if the gas was pure, half a volume of a gas remains, which is hydrogen.

When hydroionic gas is made to act on potassium or zinc, the same results are obtained, viz. a solid compound of the metal with iodine, and half the volume employed, of hydrogen; hence the composition is evident, and it consists of one proportion of iodine, united to one of hydrogen.

Its odour is similar to that of hydrochloric gas ; its specific gravity is 4,429.

The effect of chlorine on this gas is very striking, as it instantly deprives it of hydrogen, and the dense, beautiful violet colour of the iodine appears, while hydrochloric acid is formed.

It is partially decomposed by a red heat, and completely, if oxygen be present ; water is formed and iodine evolved.

This gas is abundantly soluble in water ; when dissolved in large quantity it renders the water smoking, and of great density ; the liquid acid may be concentrated by evaporation, and obtained of a sp. gr. equal to 1,7. Though colourless when recently prepared, it absorbs oxygen when freely exposed to the air, water is formed and iodine precipitated, which being dissolved, renders the acid of a chocolate colour or brown red, nor can this colour be discharged by boiling. From this power of absorbing oxygen without evolving any gas, it may be a good eudiometric substance.

Sulphuric and nitric acids, and chlorine decompose hydroiodic acid, and the iodine is precipitated or exhaled in violet vapours, and indeed chlorine when cautiously added, is a delicate test of the presence of this acid.

Hydrogen cannot be made to act directly on iodine at common temperatures, but exposed to a red heat they unite.

OF IODINE AND NITROGEN.

These two bodies cannot be made to unite directly, but only through the medium of ammoniacal gas dissolved in water ; when ammonia is passed over iodine, a viscid brown, shining liquid, a true ioduret of ammonia is formed ; and iodine in proportion as it is saturated with ammonia loses its lustre ; when ioduret of ammonia is dissolved in water, the alkali suffers decomposition, hydroiodate of ammonia is formed, and the compound of azote and iodine ; the ioduret of azote may more easily be obtained by putting iodine in fine powder, into a strong solution of ammonia in water, and the compound will be obtained in the form of powder, of a blackish brown appearance. Great caution is requisite in preparing ioduret of azote, it explodes with ease, either by gentle friction or slight elevation of temperature ; it will even, when well prepared, explode spontaneously ; the explosion is attended with a faint violet coloured light, and is very loud. being instantaneous. The com-

pound was discovered by M. Calin, and consists of one of iodine and one of azote.

OF IODINE WITH THE SOLID INFLAMMABLES.

Sulphur forms with iodine a compound of a dark greyish colour, crystallized and radiated like sulphuret of antimony; its elements are held together by a weak affinity, for iodine is separated when distilled with water.

Carbon has no action on iodine in any circumstances, under which they have been placed.

Phosphorus combines with iodine, producing, during their action, heat without light; there are at least two distinct compounds of phosphorus and iodine, the one is of a greyish black colour, of a crystalline appearance, easily fusible; when brought into contact with water, hydroiodic acid and phosphorous acids are formed; it doubtless consists of one proportion of phosphorus united with one of iodine. The other compound is a black substance, difficultly fusible, and consists of one phosphorus and two iodine; this as well as the former compound, exhales vapours of hydroiodic acid when slightly moistened.

Boron has no action on iodine; boracic acid when fused with ioduret of potassium, is decomposed, the iodine is evolved, and oxygene separated from the boron; the latter may be obtained by dissolving the glass formed by the fusion, filtrating and washing the boron, which remains on the filter.

OF IODINE WITH SOME OF THE METALS.

Potassium, when introduced into vapour of iodine, burns with a faint bluish light, and much heat; the compound melts and sublimes at a red heat; on cooling assumes a white crystalline appearance; taste acrid; soluble in water; composed of one of iodine and one of potassium.

Zinc combines with iodine without violence, producing heat without light; the compound is white; one zinc and one iodine.

Tin combines with iodine; when in powder the compound is of a dirty yellow colour; it decomposes water, hydroiodic acid is formed and oxide of tin precipitated, or in part dissolved; hence probably originated the idea that iodine forms an acid with tin.

Iron combines with iodine, forming a brown substance fusible at a gentle heat, and volatile at a higher temperature; its solution in water is of a light green colour.

Lead, Bismuth, Copper, Mercury, and Silver, form compounds with iodine, of various shades of red, brown and orange; they are insoluble in water, while the iodurets of very oxidable metals are soluble.

Mercury forms two distinct compounds with iodine, the one yellow and the other red; the latter when crystallised is of a bright crimson; the one contains half as much iodine as the other, the mercury being the same in both.

All the metallic iodurets are decomposed by strong sulphuric and nitric acids, the metal oxidated and iodine disengaged with hydrogen; all of them which have been subjected to the action of oxygen at a red heat, have been decomposed, except those of potassium, sodium, lead, and bismuth. Iodurets are decomposed by chlorine, and sulphurets and phosphurets by iodine.

OF THE ACTION OF IODINE ON OXIDES.

When iodine is made to act on metallic oxides, the result is very different, depending on the presence or absence of water; thus when vapour of iodine is made to act on dry potassa, procured from potassium, oxygen is evolved, and an ioduret of potassium formed; but when iodine is added to a moderately strong solution of potash, the action which ensues is analogous to that which takes place when chlorine is passed through a solution of potash, two compounds are formed, the one consisting of potassium and iodine, and the other of potassium, iodine and oxygen. When iodine is added to a solution of potassa, the triple compound falls down in the form of fine granular crystals, and may be obtained pure, and free from the double compound, by digestion in alcohol, which dissolves the latter, and has little if any action on the former. The double compounds have all the properties of the iodurets obtained by the direct combination of the base with iodine; the triple compounds are analogous to the hyperoxymuriates, and are called oxyiodes, or oxyiodates.

The oxyiodates of potassium and sodium are similar to the hyperoxymuriates of those bases; their crystals are of a cubic form nearly; they scintillate when thrown on burning coals, like nitre; form a deflagrating mixture with charcoal; detonate by percussion with sulphur; when fused, give off an abundance of oxygen gas; are not altered on exposure to the

air; their composition is also analogous to the hyperoxymuriates. Oxyiodate of potassium is composed of one proportion of potassium, one of iodine and six of oxygene, hyperoxymuriate of potash, one of potassium, one of chlorine, and six of oxygene. Oxyiodate of ammonia is in the form of small granular crystals, and detonates when thrown on burning coals. The other oxyiodates have no interesting properties.

Hydroionic acid combines with the alkalis and earths, forming a class of salts called hydriodates, which are very analogous to the hydrochlorates, (*muriates*) and their properties are uninteresting. This acid also, when mixed with alcohol, forms a peculiar substance called hydroionic æther, which is very little soluble; has a strong and peculiar odour; is not inflammable; potassium may be preserved in it unaltered; exhales purple vapours when thrown on burning coals. Its specific gravity is about 1.92; boils at 148°; is composed of 100 acid and 18.55 of alcohol according to Gay Lussac.

Iodine when combined may be detected in the minutest portions by a paste made of starch in water. I have frequently taken a cork employed to close a phial containing iodine, and made traces with it on clean white paper, and when a paste brush or a little moistened starch is rubbed over it, the traces instantly become of a dense indigo blue. From this circumstance, and the fact that a beautiful violet or purple vapour arose from indigo when exposed to a gentle heat, I imagined that "Indigene" might be analogous to iodine, but after a great many experiments made on that substance, in conjunction with professor Gorham, no resemblance in chemical properties could be traced.

Water, when it contains less than one thousandth of its weight of the double or triple alkaline compounds of iodine, tarnishes polished silver; this effect produced by the compounds of iodine may be distinguished from that produced by sulphurets or sulphuretted hydrogen, by this circumstance, that solutions of sulphurets, or of sulphuretted hydrogen, by being boiled with a little muriatic acid, no longer tarnish silver; whereas solutions containing iodine still retain that power.

Cambridge, Sept. 18, 1816.

REVIEW.

A System of Anatomy, for the use of Students of Medicine.

By Caspar Wistar, M. D. Professor of Anatomy in the University of Pennsylvania. 2 vols. 8vo.

THE honour of giving to the United States the first American system of Anatomy, belongs to the distinguished author of the publication before us. Nor is this its strongest claim to our attention, since it is the production of one, who has long been a celebrated and successful teacher in the first medical school of our country, of one, whose name has long been in the mouth of thousands of physicians, grateful for the fruits of his instructions. With such titles to notice as these, we presume that our tardiness in attending to it, will be attributed to other causes, than a want of proper estimation of its importance, or of respect for its scientific and honourable author.

In an attempt to review a work of this nature, it will not be necessary to give an exact account of its contents; and still less so, to enter on a discussion of minute points in anatomy, or doubtful questions in physiology. The proper inquiry is, whether such a publication was called for by the wants of the country; and if so, whether it is well calculated to supply those wants. The first step in such an inquiry seems to be, to take a view, perhaps quite cursory, of the books on anatomy, in common use, especially in the United States.

Our students of medicine have been, we believe, in the habit of employing, formerly the system of Cheselden, and of late years, that of the Bells. The precision, simplicity, and comprehensiveness of Cheselden, have continued its popularity longer than is common; and it has passed through two or three editions in this country; but it is too concise for present use, and its physiology is in many parts defective, and in some quite erroneous. The writings of Mr. John Bell, the principal author of the system bearing that name, have caused a great diversity of opinion, as to their merits; for while none have been more

sharply criticised, none have been more generally read. They are evidently the effusions of a man of strong feelings and great talents; who, resolved not to fetter himself with exact forms of expression, indulges the free current of his pen, and does not allow himself to be checked by precision, when it would interrupt the interest, and cool the ardour of his description. He always colours strongly, often with coarseness, and sometimes incorrectly. It may very properly be made a question, whether this kind of style is admissible in anatomy, or any other science, composed of descriptions of natural objects. Boyer, so remarkable for his exactness, objects decidedly to the use of figurative or ornamental language, where clearness and precision are so important; and he not only recommends, but gives, through his works, an example of the most severe and unmixed style. Voltaire, he says, complains, and produces it as a proof of bad taste, that eloquence had been introduced even into anatomy. While the justness of these remarks would prevent our recommending Mr. Bell as an exclusive, elementary author, we ought to be grateful to him for opening an avenue, which conducts us pleasantly through the rough and forbidding parts of the science, and which invites the advances of many, who would be terrified and repelled by the difficult and barren descriptions of Boyer.

There is a work, which passes under the name of the Edinburgh system of anatomy. This is not destitute of merit; but is defective in some parts, and redundant in others, and altogether a heterogeneous mass, thrown together without method. We have therefore no great reason to regret that it has never been reprinted in this country.

Dr. Alexander Monro of Edinburgh, the third professor of anatomy and surgery, bearing that name, has lately made public the course of instruction pursued by his illustrious predecessors and himself. His arrangement is peculiar. He places first the organs of motion, next those of nutrition; namely, the digestive, absorbent, circulatory and respiratory; then of the voice; afterwards of the urinary and generative functions; next the nervous system, the brain and organs of the senses; and lastly, the distribution of the arteries, veins, nerves, and lymphatics. The description of each apparatus is preceded by a general account of that apparatus, and followed by a collection of relative pathological

facts. The latter contains many interesting observations; but cannot be ranked with the collections of Portal; and appears extremely meagre, compared to what we might expect from the storehouse of the Monros. The work however appears valuable as well as agreeable, and therefore will be popular; and the author's industry will no doubt be excited to maintain the great name of his family, by improving and enlarging his future editions.

The French anatomists have been distinguished by the production of some excellent treatises. The anatomy of Sabatier differs from the systems of the other French writers, in being a mixture of anatomy and physiology. Notwithstanding this deviation from the custom of the French, it was well received and used as the standard work, until the anatomy of Boyer appeared, which, by its exactness and its rejection of physiology, immediately superseded the former. Boyer's anatomy is a specimen of the most exact and minute description of physical objects. His descriptions of the muscles especially, are extended to a minuteness, which seems unnecessary, and perhaps will not be very acceptable in any country but France. An exact description of the osseous fabric is more useful, because the description of most other parts is continually referring to this; that of Boyer, therefore, if diligently studied, is calculated to form an excellent foundation for the science, and even to create a passion for it. This author is also to be admired for the firmness, with which he maintains his exact method of description against all the obstacles that present themselves. The descriptive anatomy of Bichat, bears strong marks of that powerful genius, that gives an air of novelty to every thing it touches. One would scarcely have thought it possible to add so much interest to so ancient and precise a study, as that of anatomy, by some changes in arrangement, some alterations of nomenclature, and some new ideas, or rather new views of things already known. It is unfortunate that a part only of the descriptive system was the work of Bichat; for he died when about half of it only was accomplished. The remainder was performed by his pupils Buisson and Roux, in a manner, not dishonourable to the reputation of these ingenious men, but which has not the spirit of their master. Bichat did not attempt great innovations in the system of descriptive anatomy.

probably because he did not consider them necessary, or did not believe they would be received. He proposed indeed a different arrangement, because the old one was extremely defective; but he corrected the nomenclature with a temperate hand, and yet availed himself with so much address of the labours of Chaussier, that while the nomenclature of the latter is hardly adverted to, but as a curiosity, the changes of Bichat are actually adopted in France, and will be so in England, as soon as his anatomy has received an English dress.*

Professor Soemmerring's book, *de corporis humani fabrica*, is valuable as a collection of facts, but intolerable for its style. The latin translator employed by Soemmerring has involved his ideas in very long and obscure sentences. The construction of a sentence of six or eight lines is as much as we can commonly embrace with convenience, in the vernacular language; but this translation presents us sentences of half a page, and even of a complete octavo page of difficult latin. This system merits an English translation, as well as the beautiful publications on the eye, ear, the organs of smelling, tasting, &c. all of them possessed of so much merit, that the industry and ingenuity of posterity will with difficulty surpass them.

A novel and beautiful treatise on anatomy may yet be composed, in which the plan would be strictly analytical. Such a system would not indeed be calculated for the beginner, because it would require a preliminary knowledge of the elements of the human fabric, and especially of the osseous system. It should commence with a description of the external form and proportions of the body, their differences in individuals and in the sexes. Next would follow an exact examination of the prominences and depressions, which present themselves, particularly about the articulations, and a comparison of them with some of the phenomena, which are the consequences of disease or accident. After this, might be described the appearance of the skin in various healthy individuals, its alterations in colour and texture from disease; and then its internal structure. To this would succeed the cellular membrane, the fascia; and those being supposed to be turned aside, the muscles, arteries, veins, nerves, lymphatic glands, and their connexions and rela-

* This anatomy is now translating into English.

tions to each other displayed in such lights, as would exhibit them most distinctly and usefully, and above all their relations to those parts of the bony fabric, which are most remarkable on the surface of the body. The same plan might be pursued in regard to the organs of the great cavities. The advantages of such a system of anatomy must be obvious. It is the anatomy for practice. It is the anatomy that every one meets, when he dissects the dead body. It is the anatomy that every one must picture to his imagination, when he takes up the knife to operate. Many materials for such a system are already prepared by the admirable labours of Cooper, the Bells, Monro, Burns, and Watt.

The work, which is the object of these remarks, was designed by its author, principally for the use of those, who attend his course of lectures. Its plan is adapted accordingly, and does not seem to be copied from that of any other writer. The defective and embarrassing division of the subject of anatomy into seven parts, which has been received by almost all anatomical writers, is here quite abandoned. The book is divided into eleven parts. The first contains the osseous system; the second the muscular; third, the ligamentary and synovial; fourth, the brain, spinal marrow, eye and ear; fifth, the integuments, cellular membrane and skin. The arrangement thus far agrees with that proposed by Bichat; but in the remainder of the work, the author, governed no doubt by convenience for dissection and demonstration, has pursued a different method. In part sixth, he describes the nose, mouth and throat; in part seventh, the thorax and its contents; in the eighth, the organs of the abdomen and pelvis; ninth, the blood vessels; tenth, the nerves; eleventh, the absorbent vessels; lastly, an appendix on the blood, and structure of glands, and a glossary of anatomical terms. This plan is perfectly adapted to the circumstances which occur in a course of lectures on anatomy; and as the design of the author was to make his work an auxiliary to his course, his judgment could not be better exhibited, than in such a plan. The lecturer on anatomy is for the most part excluded from the advantages of an exact method, although perhaps there is no science in which they would be more desirable. For a distinct and connected plan of arrangement would enable the student to form some anticipated notion of the parts of the hu-

man fabric, and thus dissipate that perplexing obscurity, which arises from the dependance of the knowledge of one part on that of another. To one, also, who has become in some measure acquainted with the whole human system, it is a great pleasure and advantage to look back, through the medium of a good arrangement, and in a single view, to connect the knowledge of all those parts, which it has cost much time and pains to study separately. In point of connexion, the excellence of the arrangement, proposed by Bichat, is very conspicuous. For its foundation it takes the uses or functions of organs; and its principal divisions are laid out conformably to the finest views of agreement and difference in the beings, which compose the organized creation.

In the first and second parts, which treat of the osseous and muscular systems, Dr. Wistar has not considered it necessary to vary his language materially from that of other writers; because he found theirs well accommodated to his purpose. In speaking of the articulations, he, with great justice, questions the utility of the common arrangement of those parts. We would agree with him in rejecting their nomenclature and arrangement altogether. The terms of *symphysis* and *suture*, it might be necessary to retain, because they have been applied to particular parts, namely the connexion of the bones of the pubes with each other, and that of the bones of the cranium; yet they ought to be considered as denoting, not species, but individual articulations. As for the *synchondrosis*, *synneurosis*, *syssarcosis* and *synarthrosis*, *gomphosis* and *scindelesis*, and *diarthrosis*, *enarthrosis*, *arthrodia*, *ginglymus* and *amphiarthrosis*, they are horrible terms, meaning nothing useful; they are a stumbling block to the young student, and a laughing stock to the proficient; they are rarely understood by any one, and no sooner understood than forgotten; in short, they are scarcely explained by two anatomists in the same way, and seem to be of no other use than to enable stupid teachers to astonish ignorant young men.

The third part, which treats on the ligaments, &c. contains many useful additions to our English anatomy. The fourth is peculiarly excellent. The description of the organ of vision is one of the most exact pieces of anatomy we possess; that of the organ of hearing renders this difficult part remarkably clear

and intelligible, and at the same time exhibits powers of strong conception and distinct description. The account of the nostrils, mouth and fauces is very satisfactory and useful. The organs of the thorax and abdomen are extremely well described. The structure of the lungs, barely made intelligible by other writers, is here explained as if it was intended to be understood; of course it is explained, just so far as our senses are capable of observing it, and nothing is allowed to imagination. This, in truth, is a peculiar excellence in the author of this anatomy, that he never allows himself to ramble from what is positively known, and we therefore always feel secure under his guidance. His description of the digestive apparatus is not less worthy of commendation for its exactness and distinctness.

The style of this work is concise and aphoristical. A style not intended to excite or maintain the reader's interest; but perfectly adapted for more important objects, strength of description, and comprehension of many facts in a small space. Had the author allowed himself to write freely and fluently, he would have swelled the book beyond those limits which are most convenient for the wants of students in this country. If there be an error on either side, it appears to be that of too much conciseness, when we consider that this is, or will be the standard system of the United States.

We give thanks to the author of this work for the industry, which he has exerted and the talents he has displayed in its production. It exhibits a perfect knowledge of the science it teaches, a correct taste, a judgment which always discriminates between what is known and what is doubtful; between what is useful and what is superfluous; and all these merits are enhanced by the modesty and want of pretension, which are conspicuous throughout.

Observations on Pulmonary Consumption and Intermittent Fever, chiefly as diseases opposed to each other ; with an attempt to arrange several other diseases, according to the alliance or opposition which exists between them and one or other of the two former. By W. C. WELLS, M. D. F. R. S. and Physician to St. Thomas's Hospital.

THIS paper constitutes the thirty-second article in the third volume of "Transactions of a society for the improvement of medical and chirurgical knowledge," published in London in 1812. We will not fill our pages in explaining how it has happened that we have not made our readers acquainted with the contents of this highly valuable collection at the proper time. We are now pressed by more recent works, for which it is equally difficult to find time for making analyses and pages to publish them. This paper however presents some facts and opinions so important and interesting, that they ought to be brought into view in this country without further delay. The paper is long, as it consists of numerous details which are highly valuable. The opinions advanced can however be briefly stated ; and in respect to the evidence by which they are supported, it would be injustice to endeavour to abridge it, since the force of it would be proportionally diminished.

It is the principal object of this paper to show that pulmonary consumption and fevers of the intermittent and remittent type do not appear in the same places. If indeed intermittents rarely appear in any particular place, Dr. Wells would not deny that pulmonary consumption is also found there ; but however, less than in situations where intermittents never occur.

It was not from any speculative views of the nature of the diseases in question that the author was led to the opinion above stated ; and accordingly he does not attempt to rest the opinion on any thing, which is to be seen in the characters of those diseases. He does however, after considering the evidence which he has collected, make some remarks in respect

to the efficient and ultimate causes of the opposition contended for. It is known that the predisposition to intermittents exists during a great part of the time among a large portion of the inhabitants of ague-countries; since the operation of exciting causes will so often induce fever and ague among them. He supposes then that this predisposition acts as a preventive to the influence of those causes, which produce phthisis pulmonalis. But if this learned physician had thought of founding his opinion on ground like this, it would probably have occurred to him that it proved too much. For it ought to follow that not only pulmonary consumption, but other diseases also, should be unknown in the countries where intermittents prevail. Now this assuredly is not the case. Besides, an intermittent, if left to itself, will at length cease in most cases. In such cases the predisposition is undoubtedly destroyed in the action, at least for a time, and the patient should then be liable to other diseases. This would seem a favourable moment for any disposition to phthisis pulmonalis to show itself. To this remark we are more easily led, because although we have had very little to do with intermittents here, one instance has occurred to us of pulmonary consumption following the other disease. The intermittent was of a character the least doubtful, it left the patient debilitated, and before his strength was fairly restored the symptoms of pulmonary consumption were manifested.

In respect to the final cause of the opposition between these diseases, Dr. W. suggests that it may be designed to maintain that balance between good and evil, which has been observed to exist in different situations in this world. As the diseases in question are among those which are the most destructive to life, they are not allowed to occur together in a high degree. Probably a critical examination would not give a very full support to this argument. The truth seems to be, in respect to the different parts of the globe considered as places of residence for man, that the physical good and evil which belongs to them is very various, not only in kind but in degree also. It is left to men to choose in what spots they will make settlements, and they often fix upon those which are least salubrious, or least pleasant, from hopes of profit, from a desire of independence, or from other considerations of expediency, without reference

to the health of their species. If salubrity of situation were regarded, we should not see our fellow men freezing near the poles, not burning near the equator.

These remarks are made not to combat arguments, on which Dr. Wells appears to place any great reliance; but only to show that there is nothing of a speculative kind on which his opinion can be maintained. It is to stand or fall by the evidence of facts. Now in regard to the evidence adduced in this paper it certainly is not sufficient to establish the opinion advanced, nor does the author consider the question as by any means settled. But the evidence is sufficient to render it highly probable that fevers of the intermittent and remittent types, and pulmonary consumption are produced by causes in some respect opposed to each other; and accordingly that in proportion as diseases of the one kind prevail, those of the other are rare. This is shown not only by evidence drawn from countries where fever and ague has always existed. The predisposing cause of fever and ague is well known, and by human means this cause has been removed in various places. Now it appears that when this has been done the ague has disappeared, but that pulmonary consumption has immediately taken its place. This is the most striking part of the evidence offered in the paper, and we shall therefore briefly state the facts.

In the first part of the last half century a very considerable portion of the low country in Scotland, was effectually drained, so as to be rendered fit for cultivation, and was actually cultivated; insomuch that the condition of the inhabitants was very much improved in respect to the comforts of life. Sir John Sinclair applied to a number of clergymen in the district referred to for information respecting the state of health among the inhabitants of their parishes. In his statistical account of Scotland he has published the reports of these clergymen. They of course had not in view the opinion under consideration, and therefore do not give just such evidence as they would have done, had their inquiries been directed to the subject. But, from the reports they give, it appears that in most of the places intermittents had diminished, or disappeared; and that consumption had become prevalent where it was very rare before, or had become proportionally more fre-

quent. In the few instances in which the evidence does not accord with this, it is not difficult to find a satisfactory explanation.

The facts stated in this paper are so striking that the subject must attract attention in Europe, and accurate observations will be made and published on the subject. We are extremely desirous that the same may be done in this extensive country, and offer the pages of our Journal to record any reports in relation to this subject which may be sent to us. The question which is proposed for examination is full of interest in every point of view. If the affirmative be established, the children of consumptive families would know where to fly for refuge. But if other observations are well founded, an asylum is open for those also who are already affected with this fatal disease of the lungs. We have long since heard that such persons might be recovered in the low countries of Flanders, but in common with many others we could scarcely credit that a climate so damp could be favourable to diseased lungs. There are some truths, which are so opposed to established prejudices, that they are known for ages and yet disregarded. We may hope at least that this will prove to be the case in respect to the restorative influence of a marshy atmosphere upon consumptive patients. Dr. Wells states, that we have observations both of ancient and modern date in favour of this hope. In certain parts of England, in the Netherlands, in Portugal and in Syria, it appears to have been a practice to send consumptive patients to low and swampy grounds, in which intermittents prevail. This practice seems to have arisen in these different parts of the world, not from any general opinion in favour of it; for it is in contradiction to the most commonly received notions on the subject. The prevalent opinion is, that the consumptive should seek elevated situations, where they may enjoy a dry and pure atmosphere. The practice must then, in all probability, have arisen in each of these places from actual observation of the benefits derived by consumptive patients, when accidentally confined in the atmosphere of marsh-miasmata. It remains for enlightened men to decide the benefit of the practice by careful experiment. For this, unhappily, subjects will not be wanting; and the disposition in the consumptive to seek that health abroad

which they cannot find at home is so great, that it will not be difficult to institute experiments. It is to be hoped, however, if there is any benefit to be derived from the treatment proposed, that it will not be discredited by an indiscriminate recommendation of it to patients, in all stages of phthisis, as has been done in respect to some other remedies.

Facts stated by Dr. Wells in this paper go far to confirm one remark, which has been made by many physicians, but of which the truth and importance are not duly realized. This is that persons labouring, or exercising very much in the open air are more exempt from pulmonary consumption than those, whose employments keep them sheltered from all the inclemencies of the weather. Of the truth of this remark we have long been fully persuaded; and still more that those who are attacked with this disease should make it an important part of their care to spend a large portion of their time in the open air, without a very nice regard to the variations of weather.

After having discussed the opposition which exists between intermittents and pulmonary consumption, Dr. Wells proceeds to inquire how far other diseases are allied to either of these. The result of his inquiry has led him to arrange several diseases as allied to phthisis pulmonalis, and several as allied to intermittents, but not with equal degrees of confidence in respect to each disease so arranged. With pulmonary consumption he places scrophula, continued fever, plague, apoplexy, and palsy; to which he has added those dropsies which are not consequent on agues, and which commence most frequently in the abdomen. With intermittents he places induration of the liver and spleen, and also jaundice and dropsies commencing in the lower extremities, and then affecting the abdomen. All these he considers as sequelæ of fever and ague. As properly allied with that disease he ranks dysentery, bilious colic and cholera, scurvy, those pleurisies, peripneumonies, and quinsys, in which the inflammation is of the most active kind, and lastly gout.

For the discussion of the opinions now stated, and the evidence in support of them, the inquisitive reader must consult the ingenious paper itself. On many points the author may rather be considered as throwing out hints than as stating opinions. The subject is certainly one of great interest, and sug-

gests much matter for speculation. The first object, however, is to settle the facts in respect to it, for which purpose are required the united labours of our professional brethren in all parts of the globe.

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[From the London Annals of Medicine and Surgery.]

1. *Sketch of the Medical History of the British Armies in the Peninsula of Spain and Portugal, during the late Campaigns.* By Sir James Macgrigor, M. D. F. R. S. Ed. Vice-President of the Society, late Inspector of Hospitals in the Army under the Duke of Wellington, and Director of the Army Medical Board, p. 381.
2. *Statements of the Comparative Health of the British Navy, from the Year 1779, to the Year 1814, with Proposals for its further Improvements.* By Sir Gilbert Blane, Bart. F. R. S. Physician to the Prince Regent, p. 490.

1. SIR JAMES MACGRIGOR was at the head of the Medical Department of the army during the operations in Walcheren, and from December 1811, to June 1814, in the Peninsula. From him, therefore, the fullest and most accurate information respecting the medical events, is to be obtained. In the present paper, he confines himself to the health of the armies while in the Peninsula, and of that he gives merely a sketch, extending indeed through more than an hundred pages, but it is a sketch which we trust he will sooner or later fill up.

1. The medical history of the Peninsula service, Sir James divides into four periods.

The first commences in December 1811, with the siege of Ciudad Rodrigo, and terminates with the close of the campaign in April, after the advance of the army into Estremadura, and the taking of the fortress of Badajos.

The second commences with the refitting and recruiting of the army in cantonments, and its advance into Spain, in June 1812. and the glorious battle of Salamanca, and terminates with its retreat into Portugal, in the succeeding November.

The third commences with the second advance of the army into Spain, in May 1813, and terminates with the erection of the British standard in France, after the battles of Vittoria and Pampeluna, and the storming of St. Sebastian.

The fourth period commences with the entrance of the army into winter-quarters, includes its advance into France, in February, 1814, and terminates with the cessation of hostilities in the following May.

During the first period, the military duties were very severe, the season very inclement, and shelter very deficient. Many of the wounded arrived with their extremities frost-bitten at Coimbra, whither they were all ultimately conveyed from Ciudad Rodrigo, a distance of more than forty leagues, and tetanus was not unfrequent among them. Contagious typhus was also prevalent at this part of the time. During the siege of Badajos, the rain was heavy and incessant, which with the severity of the duties, and some degree of intemperance, induced much disease. The returns transmitted to Sir James Macgrigor, give the prevailing diseases, as continued fever, pneumonia, catarrh, intermittents, cynanche and rheumatism.

During the second period, the army traversed the greater part of Spain, exposed during the day to a burning sun, and sleeping at night in the open air. The temperature in August was seldom below 90°, and the rains commencing in September, continued heavy during October, and the greater part of November, when the weather, equally cold as during the preceding year, was bitterly felt by the army on entering the barren mountainous frontier of Portugal. From the length of the line of communication and every other circumstance, the mortality was great, and particularly during November. The diseases were chiefly remittent and continued fever, and the latter assumed in November a typhoid type. In those parts of Spain and Portugal where intermittent and remittent fevers are endemic, the sickly season is from July to September. After the rains of the latter month, dysentery appeared, and in this other diseases had a tendency to terminate. In October, hospital gangrene spread rapidly among the wounded. Tetanus prevailed in August, after the battle of Salamanca, and appeared likewise at the siege of Burgos. The rainy weather of October proved in a remarkable manner destructive, and often suddenly, to those al-

ready exhausted by repeated attacks of continued fever and bowel complaints. During the third period, the disease was heavy. The army no longer pursued by the enemy, took its positions behind the Agueda and Coa, and collected the widely scattered sick into hospitals; many were suffering from the extreme severity of the weather, the badness of the roads and of conveyance, and still more from their enormous excesses. As soon as the army halted, Lord Wellington issued the strictest orders, and exerted the utmost of his power to procure clothing, blankets, and good provision. As the villages of the cantonments, were in a dilapidated condition, they were repaired and made comfortable by the soldiers, the greatest regard was paid to cleanliness and ventilation, and that the large body of sick might not be crowded together in the general hospitals, where contagious disease was already but too prevalent, every regiment fitted up an hospital for itself, under its own medical attendants. By this regulation the contagious typhus and hospital gangrene, which prevailed in every corps during November, as much as they had done in the retreat to Corunna in 1809, disappeared almost completely, and the army was again ready for the field in four months. The weather was very severe at the end of November, in December, January and part of February. Pneumonia with low fever, continued fever, catarrh, and rheumatism of the feet prevailed. In the early part of this period, pulmonic affections supervened on intermittents, and were often combined with agues and fluxes; the cases of dysentery conveyed to the general hospitals from a great distance, were dreadfully severe; the febrile disease verged from the autumnal remittent to the continued type. In April the weather was warm after some rain; the beginning of May was very cold, and the rains after this were heavy; the thermometer then rose, and the number of intermittents exceeded that of any other disease; on approaching the mountainous frontier of France in these months, much rain fell. In August, the army after a little rest, became so healthy, that the diseases could scarcely be reduced to distinct heads. Such an exemption from disease in a month the most unhealthy in Spain of all months, was ascribed to the bracing mountain air remote from villages, to the moderate and wholesome labour of the soldiers in fortifying the passes, to the abundance of good provisions, to the absence of tempta-

tions to intemperance, invariably present in towns and villages, and also "to the exhilarating view which they had of the plains of France, from the lofty summits of the Pyrenees, and to the hopes which all entertained of fighting on the very ground, on which the Black Prince led a victorious English army so many years before." After the battle of Vittoria in June, hospital gangrene committed great havock, and tetanus after this and the battle of Pampeluna was more prevalent than it had before been observed in the Peninsula. The continued and remittent fevers of this campaign were more mild than the year before.

During the fourth period the army retained in general the healthy state in which it had entered into winter quarters, in the beginning of November. The weather, however, was severe, even to the Scotch Highlanders; the shelter was very bad, and the enemy was incessantly annoying the men in their quarters. Synocha, pneumonia, catarrh, and rheumatism prevailed. Few men were lost, as the diseases were promptly attacked. The cavalry was the only sickly part of the army,—an occurrence never before seen by Sir James Macgrigor. At first they had synochus, diarrhœa, cholera, and catarrh; latterly typhus, pneumonia typhoidœa, and dysentery. Intermittent fever was rife throughout the army. Next to synochus, dysentery was most prevalent, but when unmixed and attacked early in the regimental hospitals, it yielded to the lancet. The few sick who were sent to the rear, were conveyed to Passages, and from thence occasionally by sea to Bilboa, and St. Andero. The season being very unfavourable on the north and east coast of Spain, and transports but ill accommodated for the conveyance of wounded men, they suffered extremely; "hospital gangrene spread; cases embarked as synochus, landed as typhus, and some assumed the appearance of typhus icterodes." About the end of February, the French were forced across the Adour, and the campaign was fairly opened. As the climate and season were favourable, the disease continued slight, until the news of peace in April, arrested the unopposed victorious progress of our immortal troops.

2. In his particular remarks upon the most prevalent diseases, Sir James begins by a statement of the number of cases of disease or wounds, treated in the hospitals, from December 21, 1811, to June 24, 1814. They amounted to 346,108.

There were cured 232,553; unfitted for service or sent to England for recovery, 4,586; dead 18,513. In the deaths are included every wounded man seen by a surgeon, although many hundreds did not live an hour after the first visit—a description of cases seldom returned in armies.

Fever. This changed its types with different seasons, places and individuals; and often required different and even opposite modes of treatment. Synochus prevailed most, then intermittents, next remittents and lastly typhus.

Continued Fever. Those regiments who had served in Walcheren, and those newly arrived in the Peninsula, suffered most. The disease, as might be expected, was at different times characterized by peculiar symptoms. In the regimental hospitals the cases of continued fever were in

1812	16,923
1813	18,294
1814 to June 24	5,007

The deaths from continued fever in general, and regimental hospitals, in

1812	2,020
1813	1,598
1814 to June 24	387

The cases of typhus, in regimental hospitals, in

1812	331
1813	1,309
1814 to June 24	155

The deaths in all the hospitals, general and regimental, were (we presume from typhus) in

1812	999
1813	971
1814 to June 24	307

Remittent Fever. The cases in the regimental hospitals, were in

1812	1,826
1813	1,699
1814 to June 24	436

The deaths in all the hospitals, general and regimental, in

1812	67
1813	65
1814 to June 24	18

Intermittent fever. The 22,914 cases admitted into the regimental hospitals, were in

1812	13,759
1813	8,203
1814 to June 24	952

The deaths in all the hospitals 291, were in

1812	148
1813	139
1814 to June 24 . .	4

The great prevalence of this complaint in 1812, was from the army passing into Alentéjo and Estremadura, always so fertile in this disease. The fatal cases were commonly of long standing, and attended by disease of the liver and spleen. They sometimes from being tertians became quotidians, and afterwards continued of the typhoid type, and, *vice versa*, continued fevers were converted into tertians. Exposure even of the feet to wet, the direct solar rays, cold, fatigue, or any kind of irregularity, reproduced the disease in the predisposed. Bark, whether cordifolia or lancifolia was indifferent, given to the amount of 3 iss in the six hours previous to the paroxysm, and in smaller quantities throughout the rest of the interval, combined with aromatics, and omitted for some time, if it disagreed with the stomach, or replaced by bitters, proved most efficacious; next arsenic, and next, the sulphate of zinc, which was best given in the form of pill, frequently to the amount of 3 ss a day. An ounce of bark united with a table spoonful of Jamaica pepper in half a tea spoonful of Cayenne, and a whole nutmeg, given at once after a gentle emetic, between the paroxysms, prevented the recurrence of the paroxysm in two cases out of three. In plethoric habits, the hot stage was relieved only by bleeding. Mercury was useful where visceral disease was present, but much of the debility which remained after agues, Sir James ascribed to this medicine and the free use of purgatives.

Dysentery. In the regimental hospitals the admissions were, in

1812 - - - -	3241
1813 - - - -	3420
1814 to June 24	865

This was the most destructive of all the diseases. It proved fatal to 4,717. The deaths throughout the army were, in

1812 - - - -	2340
1813 - - - -	1629
1814 to June 24	748

It was generally connected with intermittent fever, of which, indeed it was the frequent termination. In some persons, they alternated, suspending each other. The first stage was clearly

inflammatory, and the fever generally so, but varying according to the season and situation, being intermittent remittent, or decidedly typhoid; the acute stage often terminated very rapidly in the chronic, which was attended by ulceration of the intestines, and disease of other viscera. Persons in this state were often swept off in a few hours, when the weather set in cold and wet in Abrantes, in Nov, 1812. The disease was very manageable by depletion, when taken early. The plan of Dr. Somers, was so judicious and successful, that Sir James recommended its general adoption in the army.

“He commenced by copious venesection, and immediately afterwards he gave 3 grs. of the pulv. ipecac. c. every hour, which was repeated three times, with plenty of warm barley-water, and profuse sweating was encouraged for six or eight hours. A pill of three grains of calomel, and one of opium, was administered every second night, and on the intervening day, 3ij of sulphate of magnesia, dissolved in a quart of light broth; the venesection was to be repeated, while the state of the strength and pulse permitted it, until the stools were free or nearly free from blood; following up this plan with the Dover’s powder as a sudorific.”

The warm bath was employed where excruciating pain or tenesmus was present, and the return to health was promoted by gentle tonics and light nourishing diet. Relapses, frequent from the thoughtlessness of soldiers, were relieved by the repetition of the same method.—The chronic form was treated by procuring easy stools and relieving the tenesmus, by means of ipecacuanha, calomel, castor oil, neutral salts, &c. and by diminishing the frequency of the stools, and strengthening the intestinal canal by means of opiates, astringents, aromatics and bitters. Dissection showed this form of disease to be attended by organic affection, chiefly of the liver and spleen, in equal proportions; next of the mesenteric glands, and sometimes of the entire pancreas. In those cases where the liver was affected, as shown by pain in the right hypocondria, and shoulder, the brown hue of the skin, &c. mercury was useful; in a chronic form of dysentery, where there was no fever, few stools, and no appearance of hepatic affection; and finally, in the complication of mesenteric disease: in other cases, mercury was useless and often injurious, especially where hectic fever or ulceration of the intestines was present. The employment of mercury did

not preclude the use of aperients, opiates, diaphoretics, &c. Dr. White's plan of bandaging the whole abdomen with flannel and adhesive plaster, was particularly serviceable in chronic dysentery.

Pneumonia. The cases in the regimental hospitals, were in

1812 1604

1813 1481

1814 to June 24, . . . 942

The deaths in all the hospitals, were in

1812 58

1813 131

1814 to June 24, . . . 96

Blood-letting was the great remedy, and was repeated not according to the quantity abstracted, nor the appearance of the blood, but according to the agency of the symptoms, till pain was removed, and the breathing rendered free. Neither blistering, nor purgatives, nor sudorifics, could supply its place. These excellent remarks are equally applicable in private practice; we doubt the use of any drugs in this disorder, unless to remove particular symptoms, where lancets, leaches, cupping-glasses and blisters are favourable.

Phthisis pulmonalis. There died of this disease in all the hospitals, in

1812 49

1813 158

1814 to June 24, - . . 72

A proportion, excluding deaths from wounds, much less than that observed by Sir James in the army when in England.

In England, the deaths from phthisis amount to one-fifth, one-fourth, or even in some regiments to one half of the whole mortality. He was anxious to ascertain the effects of the Peninsula upon consumptive patients, and it resulted from his inquiries, that

“Persons coming to Portugal or Spain, and to part of France, from colder climates, with only a predisposition to phthisis, with tubercles in the lungs in a quiescent state, or not actually suppurating, do receive some benefit from the sea voyage or change of air, or rather, that the disease does not make any progress. When however, suppuration and ulceration have taken place, the result is almost always as fatal, and in as short a

time, as if the experiment had not been tried of change of climate."

The physicians of Lisbon and Montpellier informed him, that they seldom witnessed the recovery of a patient sent from England, and scarcely any other good effect than an alleviation of the cough.

"The vicinity of the mountains to the north of Montpellier, renders the climate in winter and spring very changeable, and this is found to be a cause of much mischief to phthysical patients. Those cases which originated in the country, were generally from the neighbourhood of Montpellier. There are other situations that appear better for the consumptive than Montpellier, viz. between that place and Nismes, and near the banks of the Garonne, from Toulouse to Bourdeaux. Lisbon has many disadvantages for the phthical, from the vicinity of a mountainous country, and the neighbouring sea, and from the total want of protection in all the houses against change of temperature."

The air of Walcheren was found generally favourable to those labouring under pulmonary complaints, but we think Dr. Southey has, in his *Essay on Consumption*, brought a sufficient preponderance of evidence against the opinion of Dr. Wells.

Rheumatism. The cases in the regimental hospital were 4933. Some obstinate chronic cases yielded to 3j. of oil of turpentine, given twice a day. This is a favourite and very successful remedy of the common people of England, in cases of lumbago and sciatica.

Tetanus. This was very prevalent after all the great battles, but the immense opportunities of experiment, we are sorry to say, threw no new light upon its treatment.

The art of preserving health is simple. Good food with temperance, good air, the maintenance of the natural temperature of the surface, cleanliness, moderate and agreeable exercise of body and mind, succeeded by repose, are the great objects to be held in view. Soldiers and sailors are necessarily exposed to a great deficiency of these, and it is sound policy no less than humanity, to attempt to obviate this deficiency to the utmost. In modern times, and especially within the last fifty years, the great diffusion of liberal principles, and the progress of science and useful arts, have prodigiously improved

their condition; and in conjunction with the advancement of medicine and surgery, have greatly diminished their mortality. The modes of accomplishing this object in the army, are fully set forth in Sir John Pringle's work, and the writings of Dr. Lind and Sir Gilbert Blane contain great information respecting the navy.

Sir James Macgrigor mentions the chief peculiar circumstances, which were productive of the smallness of the mortality among our troops in the late peninsular warfare, for small it certainly was, considering their hardships and disadvantages. Before the embarkations of troops, and none but healthy and adult should ever be received, an officer appointed for the purpose, examined the quality of the water and provisions, the space and accommodation for the men, the sick births, the means of ventilation, cleanliness, and fumigation, and drew up a report. Immediately after the embarkation, he inspected the troops, and drew up another report upon their degree of cleanliness and ventilation, the appointment of medicines and their medical comforts. On their landing at Lisbon, a similar report was always forwarded to Sir James Macgrigor, by the inspecting officer, and also a report of the casualties and diseases of the voyage. New troops were gradually inured to the climate and service, by being detained at the first port, or by being sent to Gibraltar or Cadiz previously, by being first employed in garrison duty, &c. Such were the effects of habit, that 300 men who had served five years, proved more effective than 1000 newly arrived. Rustics bore the fatigues much better than mechanics, and especially the mechanics of large towns; and it was found always desirable for recruits to join about the close of a campaign, just when the army was going into quarters. The superintendant of every division reported to Sir J. all the complaints of the men respecting their provisions. To prevent the allowance of meat and drink, intended for some days, from being consumed at once, the soldiers were, whenever it was possible, ordered by the duke of Wellington, according to the recommendation of Sir John Pringle, to mess in parties, and their officers took care that the meat was well boiled, and that the men received the addition of vegetables and salt, whenever this was practicable. Besides the common

spring waggons, each corps, by Sir James' advice, had a tilted cart for the conveyance of the arms, &c. of those who were slightly ill, and many men were thus prevented from going to the rear. Sir John Pringle's advice in regard to relieving the general hospitals by means of regimental ones, was fully acted upon, and proved of material benefit. There were separate hospitals for dysentery and fevers, surgical cases, and chronic and intermittent complaints. Every division had a superintendant, who received the reports of the surgeons, and regulated all the medical concerns; and as medicines, bedding and stores were carried with the army, the men, by constructing chimneys, on getting into any building, and making bedsteads, collecting additional straw, &c. established hospitals for each regiment the moment they halted, and often in the very face of the enemy.

We are much pleased with the truly gentleman-like and candid manner of Sir James Macgrigor. "Much, very much," says he, "have I been beholden to the officers of the medical department of the Peninsular army, as I derived from them all the information, which I now submit to the Society. I received from them on service, that support and assistance, by which alone I was enabled to conduct the service, and bring it to a successful termination." We are also fully satisfied that "there was, throughout the whole medical department, a spirit of energy and devoted zeal for the service, which pervaded the whole body, and which is really beyond all praise." This is undoubtedly to be ascribed to the consideration in which medical men were held. *Honos alit artes, omnesque incenduntur ad studia gloriâ; jacentque ea semper, quæ apud quosque improbantur.* However illustrious the Duke of Wellington may be for his success in battle, the greatness of his mind shone splendidly in giving to every one his due tribute of praise, in constantly maintaining an accurate discharge of every duty, and conducting every thing on the most enlightened principles. To the medical department he gave the utmost encouragement, by promoting their exertions and gratifying them with the same public attention as the military department. The medical officer, although

Scire potestates herbarum, usumque medendi.

Maluit, et mutas agitare inglorius artes,

is of equal importance with the rest, and the effective force of the late army was kept up, or perhaps increased to the amount of several thousand men, by medical exertion; but to exert himself with ardour, he must receive that attention which his knowledge and importance demand. Not because it is, to use the words of Mr. Burke, the cheap defence of nations, but because it is demanded by justice and good feeling.

2. We should, perhaps, censure Sir Gilbert Blane's paper as much too diffuse, were not the subject dear to the writer's heart, as it has engrossed his attention nearly all his life, and lies under the greatest obligation to him for its present advancement. The information is derived not only from the opportunities offered Sir Gilbert Blane, while physician to the fleet in the West Indies and North America, during the four last years of the American war, and while commissioner of sick and wounded seamen, from the year 1795 to 1802, but from materials liberally afforded by the public offices, or on application made in the name of the Society. There has been a gradual diminution of mortality in the navy from the first period to the second, and so great is this diminution, that the number of deaths in 1813, was less by 6674 than what it would have been, had no improvements taken place since the year 1779. The chief means are in this paper enumerated by which the deficiencies of healthful circumstances abovementioned have been diminished in the navy and this small mortality effected. They are the use of citric acid to obviate the bad effects of deficient fresh aliment; the orders now given for a liberal supply of fresh meat and vegetables while ships are in port; the frequent inspection of men's clothing, as to cleanliness and good repair; the institution of slop ships for the reception, cleaning and clothing of newly raised men, and their conveyance to their ships not as formerly, in small tenders, but in large men of war; the employment of vertical funnels for ventilation; great strictness in enforcing sweeping and scraping; dry rubbing instead of scouring; the substitution of iron water casks instead of sand and gravel ballast, which imbibe noxious filth; the improvements made by Mr. Seppings, in the construction of vessels, by which the ships not only gain strength but many sources of impurity are diminished, from the obliteration of

the cavities under the floor of the hold which formerly received all kinds of filth, from a communication constantly existing between the open air and the hold and spaces between the decks through the intervals left between the timbers of the frame, from the less liability to leakage, and consequently by this and the improvement in ballasting, the removal of the offensiveness of the bilge water; the contrivance of illuminators or bull's eyes, inserted in the ports and decks for the admission of light in bad weather, so as to prevent the necessity of candles; the superiour excellence of the food now allowed; the supply of as much wine as is equivalent to half the allowance of spirits; and the use of cocoa for breakfast. The practice of vaccination too is now general, the medicines and medical means are now as good as can be procured, and both medicine and surgery have been greatly advanced during this period. By the late improvements, it is calculated that two ships of war are now capable of more service than three of the same rate in former times. Much, however, is yet to be effected, for the mortality among sailors is at present double the quantity in civilized life. The suggestions of Sir Gilbert Blane on this head are, a more strict and general enforcement of the present regulations; the performance of watering duties in the West Indies by negroes; the taking in a good store of provisions preserved on Mr. Appert's plan; an ample and regular supply of soap; and lastly, the encouragement of tea drinking, with the view of lessening the practice of tippling, and indeed he expatiates with such warmth of eloquence upon the cups which "cheer, but not inebriate," that we should almost be inclined to suspect Sir Gilbert is like Dr. Johnson, "a hardened and shameless tea-drinker, who has for twenty years, diluted his meals with only the infusion of this fascinating plant, whose kettle has scarcely time to cool, who with tea amuses the evening, with tea solaces the midnight, and with tea welcomes the morning."* Throughout the paper, a great spirit of liberality and benevolence are conspicuous, and an ardent interest both in the utility and the honor of his profession.

* Dr. Johnson's Review of a Journal of Eight Days Journey, &c.

An Account of the Origin and Progress of the Plague in the Island of Malta, in the Year 1813. By Robert Calvert, M.D. Physician to the Forces, p. 1.

THE professed objects of this communication are "First, to give a faithful narrative of the introduction and progress of the plague in Malta; and secondly, to ascertain from induction of facts, the laws of pestilential contagion." Consistently with this plan, Dr. C. enters into a minute detail of the circumstances attending its progress, from the supposed period of its introduction, on the 29th of March, to its termination in December; but as this part of his paper cannot be well abridged, we refer our readers to it, and proceed to make a few remarks upon the second, and apparently the chief object which Dr. C. has in view, namely, to prove that the plague may be communicated simply through the atmosphere. In this, we think, Dr. Calvert has failed. At Constantinople and Smyrna for instance, we know that no one fears the plague, who avoids contact with infected persons or substances. Lately we saw a gentleman from Smyrna, who assured us that he had frequently sat at dinner with infected persons, without fear or injury, there being no cloth upon the table, but that the presence of a cloth almost invariably communicated the infection—we were not previously aware that the infection of any part of a substance fitted for becoming a *fomes* of contagion, spread throughout the whole. The arguments of Dr. Calvert are the following. When the plague prevails, all fevers or inflammations have a pestilential character, showing the general diffusion of the pestilential effluvium: the plague prevails at certain periods only, while contact would produce it at any time: lastly, at Malta, and the same has occurred before, no contact could be demonstrated, which, had it existed would have been discovered, because free pardon and rewards were offered to whoever would confess it, and dreadful vengeance was denounced by the church to those who concealed any information. In considering the force of these arguments, we must keep in mind, that at Constantinople, Smyrna, &c. no one fears the plague who avoids contact with infected persons and substances. First, contact alone cannot of course be sufficient, if the season of the year strongly opposes the disease, or the

predisposition of the person exposed, is extremely weak ; while in contrary circumstances the disease will, whether communicated by contact or diffused effluvia, prevail to the utmost. Secondly, that diseases during the season of plague put on its character, only shows that persons who, while healthy, resisted the plague, whether applied by contact or diffused effluvia is unimportant, become, when their constitutions are deranged, unable entirely to resist its influence. Thirdly, the difficulty of tracing sources of contact is nothing more than might be expected. Contact with infected substances may and must often occur without the knowledge of any one. Again, were the plague disseminated by atmospheric diffusion, those persons nearest the source of the contagion ought, *cæteris paribus*, to be first infected, as the further the distance is from them, the more diffused and weak must be the contagion ; yet distant persons in various parts, were first attacked. This paper is rather inelegantly written. We should hardly have supposed the two following passages to have been written by a physician. “But as many frauds as are usually required, are as improbable as they are unphilosophical : for they tend to defeat scientific investigation, while they fail to produce conviction themselves.” p. 47. “Neither does it follow, that because the founders of existing ones (lazarets) were ignorant of the laws of the contagion, they should be continued in use.” p. 62.

Observations on the Mediterranean Fever. By Alexander Denmark, M.D. late Physician to his Majesty's Fleet in the Mediterranean, and now resident Physician at Portsmouth, p. 296.

DR. DENMARK'S chief object in this paper is to prove the great utility of blood-letting in the early stages of the disease in question ; his observations lead him also to conclude, that it is of a contagious nature. But as neither of these opinions are novel, we do not think it necessary to enter further upon the subject.

1. *A Case of Locked Jaw cured by Oil of Turpentine, given as a Clyster.* By Edward Phillips, M. D. p. 65.
2. *On the Use of the Lactuca virosa in Hooping Cough.* By T. Gumprecht, M. D. Physician in Hamburgh and Holfrath, in Saxe-Coburg, p. 608.
3. *On the Use of Nicotiana in retention of Urine.* By Henry Earle, Esq. Surgeon to the Foundling Hospital, p. 82.

THE spasmodic nature of the diseases described in these three cases, though they will be found to possess no other common character, may perhaps be mentioned as a sufficient reason why they should be classed together here.

1. The subject of the first case was a young lady "æ. 20, of a delicate and sensitive habit, and always much affected by the slightest mental irritation." After dancing, she was seized with a violent spasmodic affection of both legs, and a severe pain in the right side. These convulsive paroxysms increased, and became more general; and were supposed by Dr. Kinglake, who attended her, to be decidedly of an hysteric nature. In about a fortnight, however, they were subdued, and she remained well for more than six months, when they returned with increased severity. She was again considerably relieved by the use of antispasmodics, and a strict attention to the state of the bowels. But a relapse soon occurring, Dr. Phillips was called to attend her. She now laboured under

"Strong and general convulsions. The jaw was firmly locked, and the whole of the left side paralytic, and there were frequent and unavailing attempts to vomit, especially after any abatement of the spasm. Her sight was very imperfect, though there was no alteration in the pupils of the eye, and the pulse was steady. The jaw had been locked since the preceding morning, from which time all the other symptoms had become progressively worse. The catamenia had been somewhat useful as to their appearance, but no natural change was observed either in quantity or quality."

The warm bath was ordered, which with the other remedies proposed, seemed to afford some relief; but this was transient only, and the spasmodic symptoms soon recurred more violently than ever.

"Syncope came on, and the pulse was weak, rapid, and intermitting. The sickness returned and was almost incessant,

and tired nature seemed nearly exhausted under such accumulated sufferings." In this state Dr. P. "immediately desired that a clyster might be thrown up with some force from a syringe, composed of half an ounce of the oil of turpentine, rubbed down with the yolk of an egg, in eight ounces of infus. of senna."

This appears to have acted almost like a charm, for in about four minutes after it had been given, Dr. P. found her "sitting up in the bed smiling, the jaw was completely unlocked, and she with great complacency thanked him for the great and almost instantaneous relief which had been afforded her. She was able to move the left arm and leg, and there was a total subsidence of the disease and its attending bad symptoms."

She took a little refreshment, slept well, and was cheerful, and conversed with the greatest ease. About six the following morning, she had a copious natural stool, in which was a *small worm*, the first she had ever been observed to pass. From this time, by proper attention to the state of her bowels, and by the use of tonics, she gradually recovered her strength, and has not had the slightest return of her complaint.

It is to be regretted, that the "small worm" had not been more minutely described, as it might have thrown some light upon the subject. Dr. P. indeed, concludes his paper by telling that the whole plan of treatment pursued "was the result of much previous reasoning and careful deduction." What the nature of this reasoning was, however, he has not thought proper to inform us, and we think he has acted wisely. How far the turpentine clyster may prove generally beneficial in tetanus, it is impossible to say. There may, however, be modifications of this deplorable disease in which it may prove useful, as it has been lately given in cases of epilepsy, with decided advantage,* hence it appears to us to deserve a fair trial.

2. The *Lactuca virosa* (*Syngenesia, Polygamia Equalis*) is a common plant in this country. "It grows about ditch banks, borders of fields, and old walls, flowering in July and

* See the Edinburgh Medical and Surgical Journal, vol. xi. p. 300, &c. In the same vol. p. 138, a case of tetanus is related in which it was given in the form of clyster, as recommended by Dr. Phillips, but without success. See also Medical Transactions of the College of Physicians, vol. v.

August.”* It was not unknown to the ancients. But Collin, of Geneva, is the first who brought it into medical repute,† and the high character he gave of its diuretic properties, and its efficacy in dropsy, induced the Coll. of Physicians in Edinburgh, to insert it in their *Materia Medica*. Its extract was given in doses from 18 to 30 grs. a day. Its efficacy has been denied by some, especially by Quarin,‡ and it seems to have been very little used, even in Vienna, where its properties were first announced to the world.

Dr. Gumprecht was induced to use the extract of the *lactuca virosa* in cases of whooping cough, from having observed its efficacy “in the dyspnœa of hydrothorax, and in spasmodic asthma in general.” He recommends it to be had recourse to in the spasmodic stage only of the complaint, and relates two cases in which it proved effectual. At his recommendation also, it was employed in this disease by Drs. Chauffepié, Hempel, and Jacobsen, with all of whom it proved successful. The following is his mode of prescribing it to a child 15 months old: *R. ext. lact. vir. gr. iv. sacc. lact. ℥ii. Divide in x partes æquales*, one of which is directed to be taken every two hours. He afterwards increased the dose to nearly double this quantity. It is however, to be observed, that in both the cases related by him, the cough was not entirely removed, but reduced to the “form of a catarrhal cough in the last stage,” and that to effect this change, in the first case a fortnight was necessary, and in the second a considerable longer time. These facts certainly do not exhibit very favourable specimens of the power of this “*extremely efficacious*” and “*specific*” remedy, though perhaps they are sufficient to recommend it to the notice of the medical world.

3. The diuretic powers of tobacco have been long known. It was first used in the state of infusion or decoction, but was found to disagree so much with the stomach, that it has been but little employed. The *vinum nicotianæ tabaci*, however, is still retained in the Edinburgh Pharmacopœia, and is even a favourite diuretic remedy with some practitioners. The use of this plant

* Woodville's Medical Botany, vol. i. p. 75.

† Collin's observationes circa morbos, p. 6.

‡ Animadversiones practicæ, p. 183.

likewise in the form of enema, in suppression of urine, is not new. It was recommended, and apparently used in this manner many years ago,* we acknowledge therefore, that we were a good deal surprised to see it brought forward as a new remedy by Mr. Earle.

Mr. Earle used it in three cases of retention of urine, arising from spasmodic stricture, with complete success. He tried it also in a case of tetanus, in which it produced a temporary relief; but the exhibition of the enema caused so much irritation, that it was not persevered in. He thinks also, it might be serviceable in hydrophobia, and is of opinion, that the best mode of exhibiting it is in the form of a suppository. The suggestion is plausible, and deserves to be verified.

1. *Successful Treatment of a Case of Cynanche Laryngea.* By James Watson Roberts, M. D. of Bishop Stortford, p. 135.
2. *Remarks on the preceding Case of Cynanche Laryngea.* By the President of the Society, p. 141.
3. *Account of a Case of Croup, in which the Operation of Bronchotomy was successfully performed.* By Thomas Chevalier, Esq. F. L. S. Surgeon Extraordinary to the Prince Regent, &c. p. 151.
4. *On some Affections of the Larynx which require the operation of Bronchotomy.* By William Lawrence, Esq. F. R. S. Professor of Anatomy, and Surgeon to the Royal College of Surgeons, &c. p. 221.

IN the third volume of the Transactions of a Society for the Improvement of Medical and Surgical Knowledge, Dr. Baillie, in 1809, described three cases of fatal inflammation of the superiour part of the larynx; Dr. Farre related two more in the third volume of the Medico-Chirurgical Transactions; Dr. Percival

* "When all these means prove unsuccessful, *tobacco clysters will often be attended with a happy effect,* * but from the languor, faintness, cold sweats, nausea and great depression of the living power which they produce (even in an alarming degree sometimes) it is difficult to persuade patients to submit to them, on any fresh attack of the complaint." Thomas' Modern Practice of Physic, under the head "Suppression of Urine." London, 1807.

* "R Nicotianæ siccæ ʒii
Aq. fervent, lbj. Col. F. Enema."

another in the fourth volume; and Mr. Wilson, of Stewarton, a seventh successfully treated, in the fifth; and Dr. Roberts records an eighth, also treated with success, in the present volume. This disease begins like a common sore throat, but in a day or two generally produces pain in the larynx, difficulty of breathing, often suddenly aggravated by swallowing, and hoarseness; on inspecting the fauces, the *velum palati*, and tonsils and root of the tongue are redder than usual, and the epiglottis is erect, considerably above its proper size; there is no cough nor pain in the chest: pyrexia is of course present. The disease if not arrested, brings on the effects of violent dyspnoea, protrusion of the eyes, paleness, smallness of the pulse, and dreadful agitation, and proves fatal, often suddenly, in a very few days from its commencement. On dissection, the epiglottis, or larynx, or both, are found to have been the chief seat of the disorder, and the trachea and fauces to have been affected merely in proportion to the vicinity of the different portions of their surface to these parts. Sometimes lymph, sometimes pus, and sometimes merely an obstruction of the glottis from œdematous tumefaction, is seen. All the eight cases described, occurred in adults, of whom four were about 60 years of age, three about 40, and one only so young as 24; only in the youngest, and in one of those about forty years of age, could the disease be prevented from proving fatal, and all were males;—probably because in adult age, and in the male sex, the larynx is most evolved. Sir Gilbert Blane has discovered an unambiguous account of this affection in Lommius and Morgagni alone. The similar cases mentioned by Hippocrates in his *Prænot. Coacæ*, and by Tulpius, he regards as croup. However this may be, Mead mentions a disease which he considers similar to that mentioned in the works of Hippocrates, and which really appears to be cynanche laryngea. “In the third species (*of Angina*) all the nerves are convulsed, and the patient drops down dead suddenly. Of this sort I have seen one instance, in which, though a large quantity of blood was taken away twice in six hours time, yet that evacuation was of no avail. Upon dissection, there was not even the least appearance of swelling or inflammation in the glands or muscles of the mouth or throat, but the blood vessels were turgid every where with thick blood. This disease, however rare, is described by Hippocrates (*Prognost.*)

with much pain and dyspnoea, and with nothing observable in the fauces or neck."

A. M. Brasavolus in the Philosophical Transactions, and Parmann, as quoted by Mr. Lawrence, mention such cases. In Boerhaave the disease is certainly described. The Dictionnaire des Sciences Medicales, gives a description of this disease, under the title too of Cynanche Laryngea, although the volume containing this description was printed in 1812,—the same year that Dr. Farro's paper was published and this appellation given by him to the complaint; and neither the Transactions of a Society for the Improvement of Medical and Surgical Knowledge, nor the Medico-Chirurgical Transactions are quoted among the list of works from whom the compilers derived their information.

Analogy and the review of the cases lately published, point out early, sudden and copious bleeding, with the application of an abundance of leeches to the throat, and very extensive blistering of the neighbouring parts of the surface, together with cathartics, perhaps calomel united with tartrate of antimony, as the proper remedies. Unless relief is soon obtained, bronchotomy should be performed. Dr. Baillie recommends it, if the disorder is unabated, after thirty hours. An opening at the top of the trachea necessarily allows respiration to be performed in spite of the obstruction of the glottis, and should be allowed to remain until the inflammation has subsided, and the natural passage is restored, by the subsidence of the tumefaction. A horizontal incision between the thyroid and cricoid cartilage, or one vertical through the cricoid cartilage and upper part of the trachea, will give admission to a canula, or should this be too irritating, Mr. Lawrence recommends a longitudinal incision, of half an inch in length, in the middle of the trachea, and the removal of a thin slip of this tube. The operation should not be deferred when the symptoms appear unyielding, for after venous blood, so fatal, as shown by Bichat, has been long circulating in the arteries, freedom of inspiration cannot check its effects. As in strangulated hernia, the operation may be rendered useless by delay, no less than superfluous by haste, but the latter is the safer error. Bronchotomy is an ancient operation, productive of comparatively little pain, and by no means dangerous in its effects. Mr. Lawrence gives us a learned history of the operation from Asclepiades through the Greek, Latin,

Arabian and modern physicians. *Angina Laryngea*, however, is not the only disease of the air tube which requires bronchotomy. In *angina trachealis* or croup, it will frequently save life. An instance of this kind is described by Dr. T. White, in his Thesis, published at Leyden, in 1786. In Mr. Chevalier's case, and in one which he saw where the operation was performed by Mr. Blair, the incision gave immediate exit to an ounce or more of red and frothy mucus, and a full inspiration which ensued discharged more, so that the false membrane formed of coagulable lymph is not always the cause of dispnœa; where it is, and where the minute ramifications of the bronchiæ are overwhelmed with mucus, bronchotomy cannot be successful; but it ought always to be tried, and that in good time.

Mr. Lawrence describes in his paper, some cases of less acute inflammation, and of chronic affection of the larynx occurring in females as well as in males, and requiring this operation.

1. *Two Cases of the true Elephantiasis, or Lepra Arabum.* By Wm. Lawrence, Esq. F.R.S. Professor of Anatomy and Surgery to the Royal College of Surgeons, &c. &c. and H. H. Southey, M.D. Physician to the Middlesex Hospital, p. 209.
2. *A Case of an Extraordinary Enlargement of the Scrotum, with an Operation successfully performed for its removal.* By John Maddox Titley, M.D. of St. Christophers, p. 73.

GREAT confusion has arisen from the indiscriminate and ill defined manner in which the terms *elephantiasis* and *lepra*, have been used by different authors, and though considerable light has been lately thrown on the subject, perhaps the difficulties are not yet entirely removed. We shall first briefly state the particulars of the cases we are at present to consider, and afterwards make a few observations.

1. The subject of Mr. Lawrence's case, was a youth 14 years of age, born in America, but of English parents. He was the youngest of three children, neither of whom ever had any cutaneous complaint.

"Having lost his father, he was removed in early infancy to New Providence, in the Bahama islands, where he lived till the year 1813. He was obliged by his father-in-law to work hard in the open air exposed to the weather, and particularly to the heat of the sun, receiving a sufficient quantity of food,

which he described as being of a coarse kind, the same that was given to the negroes. Among the latter, or among the white inhabitants of New Providence, (which is a sea-port) he never remembers having seen any disease similar to his own. In the autumn of 1813, he left New Providence in perfect health, for England. Being obliged to work in the ship during his passage, he became on one occasion extremely wet, and took a violent cold. He felt himself ill and very drowsy, but his appetite did not fail. In a short time his head and face swelled prodigiously, this swelling gradually subsided, he felt himself better, and tubercles of the skin began to appear in the ears and face, a stiffness of the limbs came on at the same time, and has continued ever since. He arrived in England in the autumn of 1813. The disease which begins in the head, had appeared in various parts of the upper and lower limbs, by the month of April, 1814, when he was received into St. Bartholomew's Hospital; but the trunk has always been completely free."

The disease proceeded in the usual manner, but there was no decided swelling in the situation of the femoral tumor described by Dr. Adams, though the condition of the generative organs coincided with the description given by that author.

"Not only had their developement been arrested from the time the disease had broken out, but they had actually undergone diminution and decay; the scrotum was shrivelled and seemed empty, the testes could with difficulty be felt, they were soft and about the size of horse beans."

His general health was hardly affected: during the first part of his residence in the hospital the disease advanced, it then became for sometime stationary, and at length began to decline about the end of December, the ulceration healed, the tubercles lessened, and at length disappeared, and the patient was discharged from the hospital, on the 2nd of Feb. 1815. At this time there was no trace of tubercles in the face, the skin had become smooth and soft, excepting so far as its surface was irregular from the scars, and had recovered its natural color. The features are of course permanently deformed, the ears are still thickened and swoln, though much reduced from their former size. The tubercles have disappeared from the extremities, leaving however, some cicatrises and roughness of the skin.

But as soon as one disease disappeared, another succeeded, and pulmonic symptoms, as cough, shortness of breathing, &c. with great emaciation took place, which rendered his final recovery doubtful. He went into the country, however, where his face became again affected, in which state it remained at the end of August last, "although his health and strength were considerably mended." It is proper to observe also, that both his brother and sister died of consumption.

Of local applications, mild ointments and emollient poultices were the most beneficial. Various internal means were employed, as mercury, antimony, and arsenic, all which, especially arsenic, disturbed his health, which seemed to aggravate the complaint. He took acid and tonics for some time, and was allowed a full diet of meat, porter, and wine.

The subject of Dr. Southey's case is a young woman, 22 years of age, a native of Bombay, the daughter of an English officer by a Hindoo woman. The disease began to appear when she was about ten years of age, and proceeded with the usual symptoms. The breasts have disappeared, though the menstrual discharge has been tolerably regular in point of time. Dr. Adams, on examination, found the femoral tumour on the left side.

"Among the many unsuccessful remedies which have been tried in this case, acids and alkalis, vegetable and mineral tonics, arsenic, dulcamara, and sarsaparilla, may be mentioned. Temporary advantage seems to have been derived from a combination of the *pulvis antimonialis* with the blue pill. Of the local remedies, the alternation of poultices with bandages of adhesive plaster, was found to answer best."

2. The subject of Dr. Titley's case was a negro, about 30 years of age, who when a boy, received a kick on the right testicle from a mule. The testicle swelled, but by the application of remedies, was soon reduced to its natural size. Some time after this he became subject to the *rose* (the name by which the *elephantiasis* is called throughout the island) which produced a permanent enlargement of both his legs. After some years the scrotum became affected with the disease, and five years ago, it was of a size somewhat larger than his two fists; from this time it began to increase, especially within the last two

years and a half, and when Dr. T. saw him, had acquired the appearance of

“A tumour of rather an oval form, seemingly suspended from, and greatly stretching the abdominal integuments and spermatic cords reaching backwards to the verge of the anus, and descending to within an inch or two of the ground. It measured longitudinally from the *symphysis pubis* to its base 20 inches, circularly 43. The spermatic cord could be distinctly felt somewhat enlarged, the penis was completely enveloped. The urine was discharged in a full stream and without difficulty, at an orifice situated nine inches below the pubis, three inches of the canal leading to which was formed by an elongation and distension of the prepuce. The surface of the tumour was equal and smooth with superficial veins, and the integuments felt extremely thickened.”

His general health was unimpaired.

The only difficulty that seemed to occur in performing the operation was, with regard to the possibility of saving the penis: with the view to effect this, an incision two or three inches in length was made, commencing a little below the *symphysis pubis*, the penis was by this means exposed, and the extended præpuce being divided, a flexible catheter was introduced into the bladder. The spermatic vessels were then laid bare, and secured by temporary ligatures. The incision was continued backwards to the verge of the anus, and the dissection carried upwards towards the penis. The integuments were brought together by a few stitches and strips of adhesive plaster, and were sufficient to surround the root of the penis, so that this member was the only part that remained uncovered. The hæmorrhage during the operation was inconsiderable, and the patient recovered without experiencing the most trifling unpleasant symptom. The wounds in the groins and in *perinæo*, were firmly united at the end of three weeks, but the penis was not completely cicatrized before the beginning of April.*

The tumour weighed 70 lbs. There was nothing peculiar in its structure. “The integuments at the upper part of it were two inches thick, and at its base four and a half inches. A

* The operation was performed on the 5th of December.

fluid oozed from its substance, and the cavity was filled with a gelatinous matter and fluid, which also became gelatinous on cooling. The testicles were found to occupy their natural position, the left one was about the size of a hen's egg. The *tunica vaginalis* of the right side contained three pints of water, and the testicle was considerably diminished."

Under the use of arsenic the "legs of this patient became somewhat less, and felt slacker and much lighter."

It appears that the Arabians were acquainted, as Dr. Bateman has observed, with both the diseases above described, that is to say, the true Elephantiasis or *Lepra Arabum*, and the Elephantas or Barbadoes Leg, and the difference between the two diseases are distinctly pointed out by many of their writers. A late French author, however, not apparently aware of this circumstance, thought he made a great discovery when he found out that "*L'Elephantiasis des Grecs differe en tout de celui des Arabes*," he having supposed that the Arabians were acquainted only with a disease similar to that called the Barbadoes Leg, and which, therefore he terms the *Elephantiasis of the Arabians*, in opposition to the true Elephantiasis, which he calls the *Elephantiasis of the Greeks*.* This work indeed is altogether an excellent specimen of what a rage for generalization will produce, the author having classed together, under the title of *Elephantiasis of the Arabians*, diseases of the most opposite characters.

Perhaps we shall be doing a service to some of our readers, by giving the following tabular view of the most common modes in which the names of these diseases have been confounded.

1. <i>Juzam</i> , <i>Dsjuddam</i> , <i>Judam</i> , <i>Jeddem</i> , Arabic. From an Ara- bian root, signifying <i>erosion</i> .†	1. <i>Dal fil</i> , Arabic, signifying literally, <i>Elephant disease</i> .
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* See "Histoire de l'Elephantiasis des Arabes, maladie particuliere au systeme lymphatique fréquente dans nos climats, quoique méconnue jusqu'à ce jour." Par M. Alard. A Paris, 1809.

† See Bateman's Synopsis, p. 306. Also Jackson's Account of the Empire of Morocco, p. 155. *Merd* or *Murd*, signifying *bald*, is an epithet sometimes joined with *judam*; and in this case a different disease is denoted, namely, the *Leucè*, or as it is now frequently termed by the Arabians, *Beras* or *Aberas*, in which the hair, especially of the eyebrows, is deficient.

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| 2. Ελεφας, Ελεφαντιασις.
Aretæus and the Greek writers
in general.* | 2. No Greek name. The
disease having been apparently
unknown among the Greeks. |
| 3. <i>Lepra Arabum</i> . Latin
translators of most Arabian au-
thors. | 3. <i>Elephas</i> .† Latin translator
of Haly Abbas. |
| 4. <i>Elephantiasis Grecorum</i> .
M. Alard in the work above
quoted. | 4. <i>Elephantiasis Arabum</i> .
M. Alard. |
| 5. <i>Elephantiasis</i> , or <i>True
Elephantiasis</i> . | 5. <i>Glandular disease of Bar-
badoes</i> . <i>Barbadoes Leg. Ele-
phantiasis</i> of some modern
writers. |

These formidable and loathsome diseases, though perfectly distinct in other respects, seem to resemble one another in bidding defiance to physic, and consequently in being incurable.

Mr. Lawrence's case is interesting, as it shews the disease can take place in Europeans. Dr. Southey's offers nothing remarkable.

We have never ourselves seen a case of the true Elephantiasis, but have had occasion to observe the use of arsenic, *unguent hydarg.* tight bandaging, &c. persisted in for a considerable length of time, in a case of Barbadoes disease, without any permanent good effect; the legs were indeed at times considerably smaller, but they soon regained their former size. When the disease attacks the scrotum, as it frequently does, Dr. Titley's case appears to shew, that abscission can be practised with safety, and thus the miserable situation of the patient be somewhat relieved; but it is perhaps, a question whether it be worth while to run the risk of destroying the patient prematurely, merely for the sake of affording such imperfect relief.

* So called, "partly perhaps, on account of some resemblance of the diseased skin to that of the elephant, but principally from the formidable severity and duration of the disease." *Bateman*.

† So called, "from the huge mishapen figure of the limb, bearing some resemblance to the leg of the elephant." *Bateman*.

1. *Case of Obstruction in the large Intestines, occasioned by a Biliary Calculus of extraordinary size.* By H. L. Thomas, Esq. F.R.S. p. 98.
2. *Particulars of a Case in which a very large Calculus was removed from the Urethra of a Female without operation, with examples of analogous Cases.* By John Yellowly, M.D. F.R.S. Physician to the London Hospital, p. 574.

THESE interesting cases offer striking examples of the extraordinary dilatability of different canals, which in their natural state are very narrow, namely, the *ductus communis choledochus* and the female urethra.

1. The subject of the first case was a lady, aged 63, who when Mr. Thomas first saw her, was labouring under the usual symptoms of obstructed bowels. She had been troubled for fourteen years with an umbilical hernia, which during that time had never been reduced, and which presented a tumor of the bulk of a moderately sized melon. Mr. Thomas naturally concluded that strangulation of the intestines had taken place, and proposed the usual operation; but as neither the mind of the patient nor of her friends was prepared for its immediate performance, some medicines were given, and it was deferred till some more decided change should take place.

The second night after this plan was adopted, was passed in much perturbation and distress, but about nine o'clock on the following morning, her torments seemed to increase with redoubled violence, when an evacuation suddenly took place, preceded by an extraordinary noise, as if some solid body had been forcibly projected from the anus. She experienced immediate ease, and all the symptoms denoting general irritation were speedily removed. On examining the fœces, a concretion was found which weighed 228 grs. and measured in its longer diameter 1.6 inch, and in its shorter 1.1 inch. This was submitted to chemical examination by Dr. Marcet, according to whom it appeared to consist of concentric layers, or successive deposition of a crystallized spermaceti-like substance, small quantities of a dark brown, spongy, friable substance, being interposed between the strata. It was specifically lighter than water. Burnt vividly, was soluble in warm alcohol, but very sparingly soluble in a solution of caustic potash. Hence it possessed all the characteristic properties of a biliary concretion,

and Mr. Thomas concludes accordingly, that it was originally formed in the gall bladder, from which he supposes it passed through the *ductus communis choledochus* into the intestines, and produced the symptoms abovementioned, by being for some time arrested in its progress downwards, in the sigmoid flexure of the colon, and the cuts appear to warrant these conclusions.

2. The subject of the second case was a young woman, who from the age of seven years till twenty, had occasionally voided bloody urine, and which was supposed to have been first occasioned by considerable exertion in jumping. She never complained of pain on these occasions, and her general health was good. When about twenty she married, and soon became pregnant, and about the seventh month began to have great difficulty in passing her water, which lasted till her delivery and then ceased. The urine was not tinged with blood, but there was some discharge of a purulent appearance, which was supposed to arise from gonorrhœa: this ceased with the dysuria, but its source was not ascertained. In a second pregnancy she was delivered of twins at seven months. During the three last months of a third pregnancy, she had great pain in making water, and the purulent discharge returned, and was attributed as before to gonorrhœa. She had a very good time, but could never afterwards retain her water, which she had been able to do up to this period. From this time she was almost constantly affected with considerable pain in the region of the bladder, which was alleviated by large doses of laudanum. Several small calculi were now passed with temporary relief, though she still continued to suffer much pain, and in one of her severe attacks, a small calculus lodged near the external orifice of the urethra, was removed by a probe. At this time also, it was ascertained that there was a very large stone in the bladder, which in about half a year afterwards was felt by the patient, advancing into the urethra, and on examination was found so near the orifice as to be visible. In about eight days from this time it was removed, without difficulty, by the fingers, and at the same time it was ascertained by careful examination, (as it had indeed been done before,) that no communication existed between the urethra and vagina. She was greatly relieved, and her general health improved, after the removal of the calculus. The purulent discharge ceased, though she still continued to pass her urine involuntarily. In two years she again became

pregnant, and was considerably afflicted in the latter months, with cough and spitting. She had a good time, but the cough and expectoration increased, owing as it was supposed, to her having taken cold. Her strength became greatly reduced, and she died three weeks after her delivery, in the 28th year of her age. Within the last fortnight of her life, she passed several portions of calculous matter. Her body was not examined after death.

“The calculus which was removed from this patient is of an irregular surface, and of a flattened oval shape, having two little rounded projections at the extremity by which it passed from the urethra. Its weight is 3 ounces $3\frac{1}{2}$ drachms troy; it is $3\frac{1}{8}$ inches long, 2 inches broad, $1\frac{7}{8}$ inches thick, and $7\frac{3}{4}$ inches round in its larger, and $5\frac{1}{2}$ inches in its smaller circumference. It is composed principally of uric acid disposed in close concentric lamellæ, having no perceptible nucleus, and a considerable portion of its surface is covered with a mixture of phosphate of lime, and ammoniaco-magnesian phosphate.”

Dr. Yellowly then proceeds to the relation of similar cases, of which he enumerates no less than nine, from the Philosophical Transactions. Besides these, however, many more illustrative both of Mr. Thomas's case as well as Dr. Yellowly's, are on record, the reference to which will be found in Plouquet, to whom, therefore, we refer the reader. These cases strikingly illustrate the power of nature, and demonstrate likewise the propriety of sometimes leaving her to her own operations; they are of no great use, however, in directing the practitioner to determine when this ought to be done, which must, therefore, be left to his own judgment.

1. *A Case of Incontinence of Urine of nine Years' duration, cured by external pressure.* By John Hyslop, Esq. p. 108.
2. *Case of the successful Treatment of the Incontinence of Urine consequent to sloughing or ulcerations of the Bladder, from Injury during Labour, with Observations.* By S. Barnes, Esq. Surgeon to the Devon and Exeter Hospital, and to the West of England Infirmary for Diseases of the Eye, p. 583.

THOUGH these two cases differ altogether in many respects, yet they coincide in others, and more especially in demonstrating the good effects of pressure when judiciously applied, a circumstance that will very fairly permit them to be classed together.

1. The subject of the first case was a youth, thirteen years of age, who had been subject to incontinence of urine for nine years, during which time, both by day and night, he was constantly rendered miserable by the involuntary discharge of urine which took place. Tonics, cold bathing, blisters, opium, &c. had been tried before he had been put under Mr. Hyslop's care, but without effect.

Mr. H. determined to employ pressure, but as the *jugum penis* produced strangulation, and could not be borne for the necessary length of time, he fixed, by means of strips of adhesive plaster, a piece of bougie, to the outside of the under part of the penis, in a line parallel with the canal, and which projected a little way beyond the glans. This, which completely closed the urethra, was removed when there was a desire to pass urine, and afterwards again applied, and such was the beneficial effects of this practice that, in the short space of three days, the patient was completely cured.

3. The subject of the case related by Mr. Barnes, was a young woman, who after a labour of some days duration, was delivered by the perforator and crochet of her first child. During the labour she gradually lost the use, and even the feeling of the lower extremities. The parts about the *perinæum* were considerably swelled, and a very fœtid and dark coloured discharge, occasionally containing portions of membranous sloughs, followed the delivery, and lasted for about a week; and from this time she lost power of retaining her urine, which constantly flowed from her when in bed. In this state she was examined, and an opening was discovered just about the neck of the bladder which exposed the catheter, introduced into the urethra, for more than an inch. The edges of the aperture were irregular, soft and yielding, and on touching them no pain was produced, nor was any blood perceptible on withdrawing the finger. In this state

“A small silver catheter was left in the bladder, and a few days after an elastic gum bottle was introduced into the vagina. A firm one was selected capable of containing two ounces of water, and on the convexity of its side was sewn a thin fine piece of sponge as large as a dollar. A double string was passed internally through its bottom and left hanging through its neck. The sponge was well smeared with the calamine cerate, the bottle dipped in oil, folded longitudinally, and passed

into the vagina with the sponge in front. From its elasticity it immediately expanded, and by a finger introduced through the neck it was readily placed in its proper situation, so as to bring the sponge immediately opposite the perforation in the bladder. The catheter was then withdrawn."

This contrivance was found to keep up so agreeable and effectual a pressure upon the injured part, that the urine was perfectly retained for more than two hours, but it was found necessary to draw it off after this interval, even till the aperture was closed, which took place in about five months; after this, the interval was gradually lengthened, and in nine months she was as well in every respect as before her labour. By the aid of this contrivance she was enabled, even before the aperture was closed,

"To move, sit or lie without inconvenience, nor was she ever wetted unless the bottle became soft from use, which was carefully guarded against by renewing it frequently."

Four other similar cases are related, but in two of these only was the above mode of treatment practicable, and in both these, though it did not effect a cure, it produced a considerable alleviation of the symptoms.

This particular mode of treatment the author informs us, was suggested by Mr. G. Young to Dr. Gooch, though one upon the same principle was practised by Desault. Desault, however, directs the apparatus to be made of cork, or wax of a suitable form, also of linen, or of a bag filled with cotton and coated with elastic gum. All of which Mr. Barnes observes, with great justice, are, for many reasons, ill adapted for the purpose, and are far inferior to the elastic gum bottle, used in the manner above described.

"The point of primary importance in the treatment of the deplorable situation above described, 'appears to be an early application of the means of cure,' and 'in cases in which expectation of a cure is no longer entertained,' the same means will perhaps, be found the most efficacious in procuring some alleviation of the evil, as well as the most easy of application."

We consider both these cases as affording happy illustrations of the salutary effects of pressure—a means, which, though simple, and but lately, comparatively speaking, introduced into surgery, will be often found, in the hands of the judicious practitioner, one of the most effectual.

1. *Further Observations on the Ligatures of Arteries.* By Benjamin Travers, Esq. F. R. S. Surgeon to St. Thomas's Hospital and the London Infirmary for Diseases of the Eye, p. 632.
2. *A new Method of Tying the Arteries, in Aneurism, Amputation, and other Surgical Operations, with incidental Remarks on some collateral Points.* By William Lawrence, Esq. F. R. S. Professor of Anatomy and Surgery to the Royal College of Surgeons, &c. p. 156.

It is now fully ascertained, that the permanent obstruction of an artery by a ligature is produced by adhesive inflammation. If the ligature is slender and drawn tight, the internal and middle coats are cut through, the wound throws out coagulable lymph, which becomes organized, and the canal is rendered impervious. Subsequently to this process, the ligature induces ulceration of the external coat. A broad ligature does not wound the inner coats, and is equally powerful as the slender in causing ulceration of the exterior; the danger of its employment is therefore obvious. Could the adhesive effects of the ligature be ensured, without the necessity of subsequent ulceration, and the wound consequently be healed by the first intention, a desirable object would be attained. This Mr. Travers proposed in the fourth volume of these Transactions to attempt, by permitting the ligature to remain upon the artery only for a period sufficient for its first effect: it was then withdrawn, and the wound healed. His experiments, detailed in the present paper, were made upon the carotids of horses, and he draws from them, very justifiably, the following conclusions.

1. "No material obstruction is opposed to the passage of the blood upon removing the ligature, at a period of six or even nine hours from its application, and consequently its ultimate obstruction under these circumstances, must be referrible to the gradual completion of the adhesive process.

2. "The residence of the ligature for a period of six hours, affords direct evidence of an inflammatory action in the deposition of lymph between the divided tunics; which deposition is more abundant at nine hours, and sufficient for the obstruction of the vessel in twelve; presenting the form of an interstitial cord between the lips of the fissure, and continuous with it, a membranous septum extending across the vessel.*

3. "The septum of lymph is formed prior to the coagulum of blood, and in all cases of ordinary circulation is, of itself, adequate to the prevention of hemorrhage; but under a sudden extraordinary impulse of circulation, or a violent concussion *ab externo*, is liable to be ruptured and give passage to the blood. If, however, an interval of six hours be suffered to elapse after the removal of the ligature, the same violence is not followed by hemorrhage, although no coagulum of blood be formed.

4. "The cylindrical coagulum of blood supporting the septum of lymph is an additional preventive to hemorrhage under extraordinary impulses. It may be formed at twelve, or may not be formed at twenty-four hours; the nearest collateral branch being equally distant, and the obstruction equally complete in both cases.

5. "A period of twelve hours is sufficient for the obstruction of the vessel by lymph, so as to admit of the removal of the ligature, and the wound on division of the artery without danger of hemorrhage.

6. "The addition of the pressure of the ligature to the wound which it inflicts, accelerates the adhesive process; thus, within a certain limit, the earlier the removal of the ligature, the more remote is the period of obstruction; if for twelve hours, the artery may be opened immediately.

7. "The ligature applied for twelve hours upon the truncated artery, is equally safe as upon that which is continuous.

8. "The coagulum of blood is larger and more extensive in the truncated than in the continuous artery, and is not bounded by collateral vessels, but extends into them; probably owing to the feebler propagation of the heart's impulse along the divided and retracted vessel, and the consequently greater quiescence of the fluid blood."

Others have employed different contrivances with success, for temporarily compressing arteries with the same view. Mr. Travers examined the effect of Professor Assalini's compressor, compared with that of the ligature; he found it to be much slower, and to be that of simple pressure; the instrument after an application of thirty hours produced no wound, but simply

* This septum is concealed by the cylindrical coagula of blood which adhere to it intimately.

an inflammatory blush on the inner coat, of the breadth of the compressor, with an effusion of lymph. When left upon the vessel, it separated by ulceration in about four days, and the effacement of the canal was complete. Its inferiority to the ligature is evident. From a third set of experiments, this excellent surgeon found that the adhesive process is established in equal time, whether branches arise near or not to the situation of the ligature, and is a sufficient protection from hemorrhage in ordinary circumstances.

The paper so abounds in admirable remarks upon the subject, that we must refer our readers for them to the author himself.

With nearly similar views, Mr. Lawrence has proposed to cut off the ends of the ligature close to the knot, and effect complete union by the first intention. If this plan is found to succeed, it will be more extensively applicable and much preferable to that proposed by Mr. Travers. It will be applicable to all cases, not only where the vessel is tied in its course, as in the operation for aneurism, but also where tied at its extremity, as in amputation: and the operation will be at once terminated; whereas, in the other mode, the surgeon must operate twice, once to place the ligature and after some hours to withdraw it, and union will thus be of necessity delayed. Mr. Lawrence never found the least irritation induced by the enclosed ligature; never found it come away. He apprehends that it becomes surrounded by a layer of lymph, but has not yet had an opportunity of examining the parts at a period sufficiently distant from the operation, to ascertain what really becomes of it eventually. Mr. Guthrie, in his work on Gun-shot Wounds and Amputation, published sometime subsequent to the adoption of this practice by Mr. Lawrence in St. Bartholomew's Hospital, states that several army surgeons, both British and French, pursued the same method, and that the ligatures have been afterwards discharged at small abscesses. The materials and size of these ligatures are not mentioned. and therefore these cases offer no objection to Mr. Lawrence's proposal, for he uses very fine silk ligatures.

"Of the silk which I commonly employ, a portion sufficient to tie a large artery, when the ends are cut off, weighs between $\frac{1}{30}$ and $\frac{1}{60}$ of a grain; a similar portion of the thickest kind I have tried, weighs $\frac{1}{20}$ of a grain, and of the slenderest $\frac{1}{100}$."

That kind of silk twist, which is commonly known in the shops by the name of dentist's silk, and which is used in making fishing lines, is the strongest material I know of, in proportion to its size, and therefore the best calculated for our purpose, which requires considerable force in drawing the thread tight enough to divide the fibrous and internal coats of the arteries. This twist is rendered very hard and stiff by means of gum, which is applied to it in the process of its manufacture, and may be removed by boiling it in soap and water. The latter process loosens its texture, elongates it, and makes it weaker, so that after boiling, we can break with the fingers a thread, which could not have been so broken before. The stoutest twist which I have used, is a very small thread compared to the ligatures made of inkle, which are commonly employed at St. Bartholomew's Hospital. I cannot, however, break it with my finger and thumbs, although a great force may be employed in this way, by winding the thread round the ends of the fore fingers, and drawing it over the ends of the thumbs, as in the ordinary method of tying the arteries. The quantity of such a thread, necessary for the noose and knot on the iliac artery, weighs $\frac{1}{26}$ of a grain; or if the gum has been removed, about $\frac{1}{26}$. But the finest twist kept in the silk shops is strong enough, in its hard state, for any surgical purpose; and the noose and knot would not weigh $\frac{1}{40}$ of a grain. The finer kinds of silk, if used very cautiously, will answer the end extremely well; but their breaking so easily is an objection to their common employment. When the muscles or other soft parts in amputation are diseased and thickened, or when it is necessary to include some of the surrounding substance with the bleeding vessel, a stronger ligature is necessary, than for tying an artery fairly drawn from the surface."

Our author ascertained by various experiments, that there was no danger of the complete division of the artery from the fineness of the ligature, and that a thick ligature indeed not only divided the inner and middle tunics, but often left but a very thin stratum of the external: thick ligatures are known to produce quicker ulceration and to come away the soonest, and therefore thin ligatures are on every account the best.

During the last ten months, Mr. L. has employed this method of securing the arteries in ten or eleven cases of amputation, in six operations on the breast, and in the removal of two testicles.

The cases all did well, excepting a man who lost his thigh and who died of an affection of the lungs; the wounds healed readily, and nothing was seen of the ligatures.

Several cases are afterwards detailed, accompanied with excellent remarks upon amputation in general, amputation at the trochanter major, amputation immediately after severe injuries, amputation at the shoulder joint in a spreading mortification of the arm, operations on old persons, amputation of the thigh where the femoral artery is ossified, castration, removal of the breast, and the operation for aneurism. To these we can do justice only by recommending them to the diligent perusal of every surgeon. In regard to aneurism, Mr. L. very properly urges the propriety of disturbing the vessel as little as possible, and for this purpose conveys the ligature round the vessel by a narrow needle (of which there is a drawing) nearly pointed at the end, and made as thin at its edge as it can be without cutting, and armed with a single silk ligature, the point of the needle being kept in contact with the artery.

We congratulate the profession upon the originality of this paper. Mr. Lawrence is unquestionably acquainted with every truth in his profession, more extensively read than most of us, and possessed of the soundest judgment, but till now his writings have been little else than compilations. This we have always regretted, although unable to deny that a man should learn what is already known, before he attempts to add to our stock of knowledge. Were Mr. L.'s example followed, we should have sounder men and fewer pretended discoveries; but the period is certainly now arrived when Mr. L. can learn no more from his predecessors, and we look forward to his exertions with the liveliest hope.

1. *A Case of Aneurism by Anastomosis in the left Orbit, cured by tying the common Trunk of the left Carotid Artery.* By William Dalrymple, Surgeon to the Norfolk and Norwich Hospitals, &c. p. 111.
2. *A Case of Axillary Aneurism, for which the Artery was tied below the Clavicle.* By Richard Chamberlayne, Jun. Esq. &c. p. 128.

1. THE former case occurred in a delicate female, aged forty-four, commencing suddenly during the night without any evi-

dent cause with intense pain in the orbit, and a whizzing sound: five months afterwards the operation was performed, by two ligatures and an intermediate division of the carotid; the pulsation instantly ceased, and in 103 days from the operation the wound was healed, and she has remained now two years completely well: hæmorrhage to the amount of 8 or 10 oz. occurred twice from the lower part of the wound three months after the operation, but ceased spontaneously. A similar case is described by Mr. Travers in the second volume of the Transactions.

2. The latter case occurred in a negro of Jamaica, 25 years old, from a wound by the point of a cutlass: the operation was performed 15 months after the accident, by an incision upon the lower edge of the clavicle, and another obliquely over the deltoid and pectoral muscles, meeting the first nearly in the centre; the artery was tied by a simple ligature conveyed under it by a curved and eyed probe; the ligature came away in six weeks, and the wound healed in nine, at which time the tumour was much smaller, solid, and free from pain on being roughly handled.

This is we believe the first instance on record of a successful operation of this nature upon the subclavian artery, in a case of axillary aneurism. The late Mr. Ramsden, of St. Bartholomews Hospital, and Dr. Colles, of Dublin, have tied it without success above the clavicle. An interesting account of the latter gentleman's cases is published in the Edinburgh Medical and Surgical Journal for January, 1815. In one the vessel was tied before it reached the *scaleni*, in the other, after it had passed through them.

Further Observations on the Ulceration of the Cartilages of Joints. By B. C. Brodie, Esq. F. R. S. &c. p. 318.

It is always a mark of very great superiority when a medical man writes well, both upon philosophical and practical subjects. The Transactions of the Royal and those of the Medico-Chirurgical Society, contain proofs of Mr. Brodie's success in either kind. In the fourth volume of the Transactions under review, he proposed a classification of the diseases of joints according to the structure affected. This mode of considering diseases, originally invented by our countryman, Dr. Carmichael

Smyth,* and adopted by Pinel,† and universally recommended by Bichat,‡ without indeed any acknowledgment of its true origin, is of great utility, although we must agree with Corvisart,§ that it has been carried by some to an extrayagant pitch. Organs consist of different structures; for example, joints are composed of bones, ligaments, cartilages, a synovial membrane, each peculiar in functions and morbid processes; any one of these may be diseased alone, but after a time the affection may extend to the rest. Mr. Brodie treated of dropsy of the synovial membrane (*hydrops articuli*;) acute and chronic inflammation, more common in the knee, elbow, and ankles, than in the hips and shoulder, producing effusion of synovia, of coagulating lymph, or of pus, sometimes rapidly fatal and productive of ulceration, or a thickening of its substance; a pulpy thickening of the synovial membrane (never observed by him in the hip or shoulder;) ulceration of the cartilages of joints (the common hip disease;) and a scrofulous affection of the bones. In the fifth volume he described the symptoms and treatment of the affections of the synovial membrane, and in the present he has done the same, in regard to the ulceration of the cartilages. This chiefly attacks children and young persons, without any very clear exciting cause, produces pain not only in the part affected but even in others, which sometimes become more painful on pressure, and are relieved by blisters applied to them; in the case of the hip the buttock loses its convexity after a time, as in other diseases where the muscles are not much employed; the leg is sometimes at first thought longer, not that it is really so, but that the pelvis is depressed on the diseased side, at length the leg is shortened, from the absorption of the edges of the acetabulum or the repletion of the joint by lymph, protruding the head of the os femoris outwards, which changes allow the muscles to draw up the bone from its joint; the general health is necessarily affected. When the disease attacks the knee, the pain is referred chiefly to the head of the tibia; the joint has no rigidity till an advanced period, although for ease the patient moves the limb but little; the pain is at first slight and becomes gradually more intense, nor is there for a long time any evident swelling, whereas when the disease is simply an inflammation of the synovial membrane, the pain is

* Medical Communications.

‡ Anatomie generale.

† Nosographie Philosophique.

§ Sur les Maladies du cœur.

acute and the swelling manifest, very early. In treating the ulceration of cartilages, rest is indispensable. Caustic issues, although found by Mr. Brodie of little use in the other diseases of joints, are here of signal benefit, often even before the discharge is excited. With respect to the hip in young children blisters may be sufficient, and have succeeded better when perpetual than repeated. The hollow behind the great trochanter, or the outside of the hip, may be selected for the caustic. In an adult, Mr. Brodie formed a slough half an inch in breadth and two inches in length, behind the great trochanter, and instead of employing means to keep it open, rubs the surface two or three times a week with caustic potash or the sulphate of copper. A seton in the groin, though ultimately not so effectual, he conceives productive of more immediate relief. In the case of the knee, a slough may be formed on each side of the patella; and in the case of the elbow, on the inside and outside of the joint. When the wrist or ankle is affected, the proximity of the tendons may render a perpetual blister preferable. The disease, when thus opposed early is very tractable; when besides the ulceration matter is collected, the limb, in an adult, cannot be saved; in children recovery often follows very extensive suppuration. Pressure causes the pus merely to burrow; electricity and ipecacuan are useless. Mr. Abernethy's mode of opening the lumbar abscess is ineffectual here, evidently because the disease is not a simple collection of pus, but an ulceration of cartilages and bones. An early puncture is not advisable, the opening soon closes, and the operation may be repeated; no ill consequence has been observed by Mr. Brodie to follow when the orifice remained open.

Case of Hernia Ventriculi from external Violence, wherein the Diaphragm was lacerated without Fracture of the Ribs. By Thomas Wheelwright, Esq. p. 374.

THIS is one of those rare and extraordinary cases which occasionally occur to the medical practitioner, and which are calculated rather to excite surprise and to shew what *can* happen, than to lead to any useful information.

The subject of the case was a foreigner, æt. 27, a strong robust man, who had been a sailor, and who in coming to London was early in the morning thrown from a coach when "at least 145 miles" from town. He was intoxicated at the time of the

accident, and appeared to have been so little injured, that he proceeded on his journey about noon, during which he never complained of pain, and seemed to suffer but little. On his arrival he first complained of sickness, and said he was very ill. He was taken to St. Thomas's Hospital, where he was bled, after which he returned to the inn. The next morning Mr. W. saw him, and found him under great suffering :

"He complained of most severe pain in his left side, great difficulty of breathing, violent and continued vomiting, chiefly of blood. Pulse 120, small, tremulous and irregular, countenance pallid, extremities cold, and the temperature of the whole surface of the body below the natural standard."

He expired in the evening about 11 o'clock, and the body was examined the next morning.

On opening the abdomen, the viscera were observed to be little altered from their natural position, and there was no blood extravasated into its cavity. On turning back the sternum, upwards of three pints of blood were found in the left cavity of the chest, and it was observed that

"A considerable part of the large curvature of the stomach, filled with a sort of half coagulated blood, was protruded through a fissure of the diaphragm. The lung on the same side was much smaller than natural, and occupied the upper and posterior part of the chest, and was strongly adherent in its whole surface, as was also the case with the right lung. These adhesions were evidently of long standing. The heart appeared perfectly healthy. The blood was found to have slowly escaped into the chest from a small semicircular aperture in the stomach, where it was strangulated. The fissure in the diaphragm was in the direction from below upwards about an inch in extent, and inclining towards the left side. The stricture was so complete, as with difficulty to allow the little finger to pass."

"It certainly at first sight appears surprising," as Mr. W. has remarked, "that the sufferings of this man should have been apparently so slight during the first 24 hours, and that the symptoms of strangulation should have been so long delayed." It is probable however that the laceration of the stomach did not take place at the time of the accident, but that it was afterwards produced, perhaps by the act of vomiting, for had the effusion of blood proceeded from the time when the accident happened, its effects most likely would have been sooner perceptible.

This case differs but little from several on record, except as to the manner in which the laceration of the diaphragm was produced, which as far as we know has not been noticed. The preparation is stated to be in the possession of Mr. Astley Cooper.

A Case of Mortification of the Uterus occurring a few hours after Delivery, with some Remarks on the Causes that produced it. By Thomas Graham, Esq. Member of the Royal College of Surgeons, p. 601.

THE subject of this case was a lady 37 years of age, who in the summer of 1812, experienced a slight paralysis which affected the tongue and right arm partially, and who had miscarried during the last six years four successive times, between the fifth and sixth month. When Mr. G. first saw her (in the autumn of 1814) she was again in the sixth month of her pregnancy, and complained greatly of the weight of the child, and of a total want of power in the abdominal muscles to support the burden of the uterus, and there seemed to prevail a considerable and rather sudden tendency to obesity. Labour came on early in the seventh month, and she was safely delivered of a sickly child, which lived till the third day. The membranes were very dense and strong. The *liquor amnii* was unusually abundant, and the feet presented. The placenta readily separated without hæmorrhage. There were no after-pains, and except this and a sensation of emptiness, such as is complained of after tapping in the ovarian dropsy, not a symptom occurred to create a doubt of the security of the patient till early the following morning, when a severe rigor continued for some minutes, and was succeeded by constant and acute pain in the uterus. Under these circumstances blood was taken from the arm, which exhibited no signs of inflammation; a blister was also applied to the region of the uterus, but in spite of these and other remedies employed, she died within six hours of the commencement of the rigor. On the following day, when the body was opened, putrefaction had rapidly advanced. The muscles of the abdomen were hardly perceptible, but a layer of fat from one to two inches in thickness, constituted the chief part of the parietes. The intestines were not inflamed. The liver was rather smaller and

paler than common ; but the spleen, kidneys and urinary bladder were perfectly sound.

“The uterus was uncontracted, and of a dark and livid hue, with several gangrenous spots on the internal surface, some nearly penetrating the substance of the uterus, and others in a more incipient stage of erosion.”

Mr. Graham supposes that miscarriage did not take place in this instance as usual, on account of the thickened and diseased state of the membranes, and therefore concludes, that the life of the patient might probably have been saved, had labour been induced artificially at the sixth month, by puncturing the membranes. This opinion is probable, and the case may be useful in directing the operation of future practitioners in similar cases of debility, though as Mr. G. justly observes, they cannot be too cautious how they risk their reputation by performing this hazardous experiment.

There is a *note* at the end of this volume by Dr. Marcet, respecting the test for *arsenic*, recommended by him in a former volume of these Transactions. The object of this note is to point out the mistake, which might arise in its use from the presence of phosphoric acid, which forms with silver a yellow insoluble precipitate, very similar to that which arsenic forms with it. This certainly diminishes considerably the value of this test, though it will be still found of great use, for as Dr. Marcet observes, it furnishes us with an easy mode of collecting in the form of a bulky precipitate, the arsenic present, and which may be rendered sensible even when in very small quantity, by heating this precipitate in a tube with a little charcoal and dry alkali.

Such are the contents of the sixth volume of the Transactions of the Medical and Chirurgical Society. They prove the Institution to be inferior neither in talent nor in zeal to any Medical Society that ever existed in Europe, and to be at once a benefit to mankind at large, and an honour to the nation. From the moment of its origin, the Society has rapidly increased in magnitude and vigour, and like a tree which produces finer fruit when full grown, than when it first comes into bearing, it has annually produced a better volume, and the present, as it is the last, so likewise it is the largest and the best.

INTELLIGENCE.

Medical Lectures.

THE lectures in the Medical Institution of Harvard University will commence at the Massachusetts' Medical College in Boston, on the third Wednesday in November.

Anatomy and Surgery, by Dr. Warren,

Chemistry, by Dr. Gorham,

Materia Medica, by Dr. Bigelow,

Midwifery, by Dr. Channing,

Theory and Practice of Physic, by Dr. Jackson.

Medical Graduates in Harvard University in 1816, with the names of their dissertations, and places of residence.

Charles G. Adams, A. M. of Keene, New Hampshire, "*Experiments on the process employed by nature in healing the wounds of divided arteries; containing a repetition of some of the experiments of Dr. Jones, and the addition of some new ones.*"

Zabdiel B. Adams, A. M. of Roxbury, County of Norfolk, "*On Vomiting.*"

Gorham Bartlett, A. M. of Charlestown, County of Middlesex, "*On Dysentery.*"

Charles A. Cheever, A. M. of Boston, "*On the disease called the Barbadoes Leg.*"

Joshua P. Dickinson, A. M. of Holliston, County of Middlesex, "*On Cynanche Maligna.*"

James Choate, of Ipswich, County of Essex, "*On Vital Motion.*"

Joseph B. Emerson, of Kennebunk, Maine, "*On Fever.*"

Ebenezer C. Grosvenor, of Savannah, Georgia, "*On Lumbar Abscess.*"

Pierson T. Kendall, A. M. of Sterling, County of Worcester, "*On Disease of the Hip Joint.*"

Jacob Kittredge, of Dover, New Hampshire, "*On Acute Rheumatism.*"

Martyn Paine, A. M. of Montreal, Canada, "*On Hemorrhage.*"

Abel L. Peirson, A. M. of Vassalborough, "*On Catarrh.*"

Nathaniel Niles, jun. of West Fairlee, Vermont, "*On Puerperal Fever.*"

Richard S. Spofford, of Rowley, County of Middlesex, "*On Rachitis.*"

John Ware, A. M. of Cambridge, "*On Veratrum Viride.*"

John Wise, A. M. of Kennebunk, Maine, "*On White Swelling.*"

Josiah Whitman, of Barnstable, "*On the winter Epidemic of 1816.*"

Some honorary degrees of Doctor of Medicine have also been conferred by the government of the University.

Professorship of Chemistry.

AARON DEXTER, M. D. has lately resigned the office of Professor of Chemistry in Harvard University. This gentleman was appointed to that office in the year 1783, when the Medical Institution was first established in this University, at a time when there were very few persons in our country, who devoted any attention to the science of chemistry. His industry, labour and zeal, not only in the duties of his own department, but also in promoting the welfare of the medical school, and the general interests of medical science, have long been known and justly appreciated by the scientific public. He had become the oldest officer in the University, and amidst numerous avocations found the engagements of this office to require more time than he could afford to them. From this cause he has had a wish to resign his professorship for many years, yet forbore to do so from considerations which regarded the interest and advancement of the establishment. At his request an adjunct-professor of chemistry was appointed several years since. When now offering his resignation he has the satisfaction of being assured that the merits of his colleague, whose early promise in this department of science he was the first to indicate to the government of the University, have been very generally recognized. We understand that in accepting this resignation the President and Fellows were desirous of expressing their sense of the very meritorious services of Dr. Dexter, and of retaining his name on the list of the Professors. They have therefore elected him Emeritus Professor of Chemistry.

John Gorham, M. D. the late adjunct to Dr. Dexter, has been elected his successor in office by the Corporation of the University, and will probably be inaugurated at the opening of the winter-course of the medical lectures.

A. P. Wilson Philip.

THE work on Fever by A. Philips Wilson is well known in this country. It may be interesting to some of his readers to know that this is the same person, whose experiments on the influence of the brain and nervous system have lately been published under the name of A. P. Wilson Philip. We know not precisely when he lengthened his name, but it was not very recently; for the third edition of his work on fever, published in 1813, came out under his new name, and is accordingly advertised as "Philip on Febrile Diseases." This caution is given partly to prevent the unwary from procuring two copies of the same work under different names.

Medical Botany of the United States.

IN the course of the ensuing summer will be published the first Number of a work on the Medicinal Plants of the United States, with coloured engravings; by Jacob Bigelow, M. D. Lecturer on Materia Medica and Botany in Harvard University. It is intended to contain the *botanical character* and *medical history* of each plant, accompanied with an accurate figure from nature, and having the generic character illustrated by botanical dissections. The engravings, a considerable part of which are already completed, will not be inferior to those of Woodville's Medical Botany, or of Curtis's Botanical Magazine. The first Number or *Livraison*, is to contain the following plants;—*Datura Stramonium*,—*Phytolacca decandra*,—*Eupatorium perfoliatum*,—*Arum triphyllum*,—*Coptis trifolia*,—*Arbutus uva ursi*, *Sanguinaria Canadensis*,—*Triosteum perfoliatum*,—*Geranium maculatum*,—and *Lobelia inflata*.

A work of a similar character to this was announced sometime before his death by the late Professor Barton of Philadelphia, but has never been carried into execution. The field of utility which is opened by such an undertaking is too extensive to remain long unoccupied. To the physician and apothecary

it must afford a great security against error and imposition, and to the lover of botany it will be found an auxiliary not destitute of importance. A prospectus of the plan and conditions will be seasonably issued. Specimens of the plates may be seen at Messrs. Cummings & Hilliard's Bookstore, No. 1, Cornhill, Boston.

Preparation in Midwifery.

THE department of Midwifery in the Medical College of Harvard University is just enriched by the arrival from Europe of a superb female wax figure, designed to illustrate the physiology of pregnancy. This figure was executed at Florence, under the direction of learned and exact professors, and probably surpasses every thing of the kind, which has appeared on this side the Atlantic.

Report of Diseases.

THE state of the weather during the past summer and the autumn thus far, having been extraordinary, the state of health during the same period, becomes an interesting subject of inquiry. The weather has been remarked to be uncommonly cold throughout the United States, and throughout Europe, excepting some of the most northern parts of it. Vegetation has been very materially affected by this state of weather. The small grains generally have been in abundance and very good; but the crops of hay have been very deficient, and the indian corn in New-England has been almost lost. No doubt these effects are to be attributed in part to the great dryness of the season. The indian corn would not have failed so entirely had it not been for the frosts in the latter part of August.

During this period society has been compensated in a great measure by the unusual good state of health among our own species, and so far as we know among the domestic animals. Within our own observation hot and dry summers have uniformly been unhealthy; hot and wet summers less so; this, which has been cold and dry, has been the most healthy season we have ever witnessed. That heat would have made it otherwise we have occasionally had abundant evidence. In the latter part of June, we had a few days of very hot weather. Evidently in connection with this state of weather, we had a short epidemic

disease, which was increasing with considerable rapidity until two or three very cool days occurred in succession. This disease had quite disappeared in a fortnight. It was a fever not fatal, but attended with some symptoms considerably distressing, and affecting most powerfully the gastric system. Afterwards about the beginning of August some warm days were productive of complaints in the alimentary canal, which for the most part were mild, and yielded very soon to gentle remedies. There have appeared also the common diseases of summer and autumn at other periods; but the cases have been very few. It should be added that a few cases of inflammation in the thorax have occurred; not more perhaps than take place even in the warm season in common years, but, however, more in proportion to the regular diseases of that season.

So far as we have heard, the state of health has been as good in all other parts of the country, as it has been within our own circle of observation.

Boston, October 10th, 1816.

The following article is inserted for the benefit of apothecaries, and of those physicians, whose mode of business may render it useful.

London Prices of Drugs.

[From the Apothecaries' Journal, for August, 1816.]

		<i>S. D.</i>		<i>S. D.</i>
Acaciæ Gummi elect.	lb.	4 0	Assafoetidæ Gummi-resina,	lb. 5 6
Acidum Citricum	-	32 0	Aurantii Cortex	- 3 6
— Benzoicum	unc.	6 6	Argenti Nitras	- unc. 7 0
— Sulphuricum	P. lb.	0 9	Balsamum Peruvianum	lb. 34 0
— Muraticum	-	2 0	— Tolutanum	- 24 0
— Nitricum	-	4 0	Benzoinum elect.	- 12 0
— Aceticum	cong.	5 0	Calamina præparata	- 0 6
Alcohol	M. lb.	5 0	Columbæ Radix	- 3 0
Æther sulphuricus	-	10 6	Cambogia	- 10 0
— rectificatus	-	14 0	Camphora	- 9 0
Ærugo	lb.	7 6	Canellæ Cortex	- 6 6
Aloes spicatæ extractum	-	7 6	Cardamomi Semina	opt. lb. 10 6
— vulgaris extractum	-	5 0	Cascarillæ Cortex	- 4 0
Althææ Radix	-	1 6	Castoreum	- unc. 5 0
Alumen	-	0 6	Catechu Extractum	lb. 3 6
Ammoniz Murias	-	2 6	Cetaceum	- 3 6
— Subcarbonas	-	4 0	Cera alba	- 3 9
Amygdalæ dulces	-	4 6	— flava	- 3 6
Ammoniacum (Cutt.)	-	9 6	Cinchonæ cord. Cortex (yel.)	6 6
— (Lump.)	-	5 0	— lanc. Cort. (quill.)	10 6
Anthemidis Flores	-	2 3	— oblong. Cort. (red.)	16 0
Antimonii oxydum	-	7 0	Cinnamomi Cortex	- 20 0
— sulphuretum	-	1 5	Coccus (Coccinella)	- unc. 3 6
Antimonium Tartarizatum	-	8 0	Colocyntidis Pulpa	lb. 36 0
Arsenici Oxydum	-	1 6	Copaiba	- 6 0

		<i>S. D.</i>		<i>S. D.</i>
Colchici Radix	-	3 6	Liniment. Camphoræ comp.	6 6
Croci stigmata	- unc.	6 6	— saponis comp.	4 6
Cupri sulphas	- lb.	1 2	Lichen	- lb. 1 4
Cuprum ammoniatum	14 0		Lytta	- - - 14 0
Cuspariæ Cortex	- -	4 0	Magnesia	- - - 12 0
Confectio aromatica	- -	3 0	Magnesiæ Carbonas	- - 4 0
Confectio Aurantiorum	- -	3 6	— Sulphas, opt.	- 1 2
— Opii	- -	6 6	Manna optima	- - 7 6
— Rosæ caninæ	- -	2 0	— communis	- - 5 6
— Rosæ gallicæ	- -	2 3	Moschus, pod, (30s.) ingr. unc.	40 0
— Sennæ	- -	2 0	Mastich	- lb. 7 0
Emplastrum Lytta	- -	7 6	Myristicæ Nuclei	- - 20 0
— Hydrargyri	- -	3 6	Myrrha elect.	- - 7 6
Extractum Belladonnæ unc.	2 0		Olibanum	- - 4 6
— Cinchonæ	- -	3 0	Opoponacis gummi resina	30 0
— Cinchonæ resinos.	5 0		Opium (Turkey)	- - 40 0
— Colocynthisidis	- -	4 0	Oleum Æthercum	- oz. 2 6
— Colocynth. comp.	2 0		— Amygdalarum	lb. 4 8
— Conii	- -	0 9	— Anisi	- unc. 3 0
— Elaterii	- -	30 0	— Anthemidis	- - 6 6
— Gentianæ	- -	0 6	— Cassiæ	- - 9 0
— Glycyrrhizæ lb.	5 0		— Cajuputi	- - 8 0
— Hæmatoxyli, unc.	0 9		— Carui	- - 1 6
— Humuli	- -	0 9	— Juniperi Ang.	- - 5 0
— Hyoscyami unc.	1 6		— Lavandulæ	- - 4 6
— Jalapæ, 2s. 6d. Res.	4 0		— Lini	- - cong. 6 6
— Opii	- -	3 6	— Menthæ piperitæ, unc.	4 0
— Papaveris	- -	1 6	— Menthæ viridis Ang.	4 6
— Rhæi	- -	3 0	— Pimenæ	- unc. 6 0
— Sarsaparillæ	- -	1 6	— Ricini optim (pr. bottl.)	12 0
— Taraxaci	- -	0 9	— Rosmarini	unc. 1 0
Ferri subcarbonas	- lb.	5 0	— Succini 2s. 6d. — rect.	5 0
— sulphas	- -	2 0	— Sulphuratum P. lb.	1 6
Ferrum ammoniatum	- -	6 0	— Terebinthiæ	- 1 4
— tartarizatum	- -	6 0	— — rectificatum	2 6
Galbani Gummi-resina	- -	12 0	Olivæ Oleum - - cong.	20 0
Gentianæ Radix elect	- -	1 6	— Oleum secundum	12 0
Guaiaci resina	- -	7 6	Papaveris Capsulæ (per 100)	3 6
Hydrargyrum purificatum	5 6		Plumbi subcarbonas	lb. 0 8
— præcipitatum album	9 0		— Superacetas	- 2 6
— cum creta	- -	7 6	— Oxydum semi-vitreum	0 9
Hydrargyri Oxymurias, unc.	0 9		Potassa Fusa	- unc. 1 4
— Submurias	- -	0 9	— cum Calce	- - 0 6
— Nitrico-Oxydum	- -	0 9	Potassæ Nitras	- lb. 1 6
— Oxydum Cinereum	1 6		— Acetas	- - 10 0
— Oxydum rubrum	6 0		— Carbonas	- - 4 6
— Sulphuretum nigrum	0 4		— Supercarbonas	- 1 8
— — rubrum	0 9		— Sulphas	- - 1 6
Hellebori nigri Radix	lb. 3 6		— Sulphuretum	- - 2 6
Ipecacuanhæ Radix	- -	18 0	— Supersulphas	- - 0 9
— Pulvis	- -	20 0	— Tartras	- - 3 6
Jalapæ Radix	- -	5 6	— Supertartras	- - 1 10
— Pulvis	- -	6 6	Pilulæ Hydrargyri	- unc. 0 9
Kino	- -	10 6	Pulvis Antimonialis	- - 0 9
Liquor Plumbi subacet. M. lb.	1 8		— Contrayervæ comp.	0 6
— Ammonizæ	- -	3 6	— Tragacanthæ comp.	0 6
— Potassæ	- -	1 6	Resina Flava	- lb. 0 5

	S. D.		S. D.
Rhæi Radix (Russia) -	42 0	Spiritus Rosmarini -	5 0
—— (E. India) opt.	16 0	—— Ætheris Aromaticus	7 6
Rosæ petala -	18 0	—— Nitrici -	5 5
Sapo (Spanish) -	3 0	—— Sulphurici	7 0
Sarsaparillæ Radix -	8 0	—— Compositus	7 6
Scammoniæ Gummi-Res. unc.	3 6	—— Vini rectificat. con.	27 0
Scillæ Radix siccat, opt. lb.	4 6	Syrupus Papaveris - lb.	2 0
Senegæ Radix -	4 6	Sulphur -	0 9
Sennæ Folia -	6 6	—— Sublimatum -	1 0
Serpentariæ Radix -	8 6	—— Lotum -	1 2
Simaroubæ Cortex -	6 0	—— Præcipitatum -	1 4
Sodæ subboras -	4 0	Tamarindi Pulpa opt.	2 0
—— Sulphas -	0 6	Terebinthina Vulgaris -	0 10
—— Carbonas -	6 6	—— Canadensis -	8 6
—— Subcarbonas -	2 0	—— Chia -	14 0
—— ——— exsiccata	5 0	Tinct. Ferri muriatis -	5 6
Soda tartarizata -	2 6	Tragacantha Gummi, elect.	8 0
Spongia usta -	26 0	Valerianæ Radix -	1 8
Spiritus Ammoniaæ M. lb.	5 0	Veratri Radix -	2 6
—— ——— aromaticus	5 6	Unguent. Hydrargyri fortius	5 6
—— ——— foetidus	5 0	—— ——— Nitratiss -	2 8
—— ——— succinatus	5 6	—— ——— Nitrico-oxydi	3 0
—— Cinnamomi -	3 0	Uvæ Ursi Folia -	3 6
—— Lavendulæ -	5 0	Zinci Oxydum -	7 0
—— Myristicæ -	3 6	—— Sulphas purif. -	3 0
—— Pimentæ -	3 6	Zingiberis Radix opt.	5 0

Prices of New Phials per Gross.—8 oz. 70s.—6 oz. 58s.—4 oz. 47s.—3 oz. 43s.—2 oz. and 1½ oz. 36s.—1 oz. 30s.—half oz. 24s.—The London Glassmen allow 10 per cent, ready money.—The Manufacturers in the Country, where all Phials are made, allow 27½ discount, at three months credit, (carriage free,) to London.

Prices of second-hand Phials cleaned, and sorted.—8 oz. 46s.—6 oz. 44s.—4 oz. 33s.—3 oz. 30s.—2 oz. and all below this size, 25s.—Three months credit.

Cummings & Hilliard have in press, an American Translation of Brera's Treatise on Intestinal Worms, and Verminous Diseases.

An Elementary Treatise on Mineralogy and Geology; being an Introduction to the Study of these Sciences, and designed for the use of Pupils, for persons attending Lectures on these subjects, and as a companion for Travellers in the United States of America; illustrated with six plates. By Parker Cleaveland, A.A.S. Professor of Mathematics and Natural Philosophy, and Lecturer on Chemistry and Mineralogy in Bowdoin College.

ERRATA in No. 3.

Page 255, second line from top, for *it has been*, read *it has not been*.

Page 255, fifth line from top, for *base* read *taste*.

Page 259, sixth line from bottom, for *3 hundredths*, read *3-4 hundredths*.

Page 260, the algebraic expression should be

$$L. B - L. b + 0,454 D \times 1 + F - 32^{\circ} + 0,00244$$

Abstract of the Bill of Mortality, for the town of Boston, from December 31, 1814, to January 1, 1816; agreeably to the Record kept at the Health Office.

	Und. 1 y.		1 to 2		2 to 5		5 to 10		10 to 20		20 to 30		30 to 40		40 to 50		50 to 60		60 to 70		70 to 80		80 to 90		Mal.	Fem.	Tot.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Tot.
January,	4	6	0	3	1	5	0	2	0	2	2	5	2	3	3	4	2	1	0	1	2	0	1	1	15	36	*51		
February,	6	7	2	3	1	0	1	2	2	2	3	1	6	2	4	2	1	3	2	1	2	1	0	3	30	27	57		
March,	7	4	3	4	2	5	1	0	1	3	2	8	2	4	4	5	1	1	1	2	0	1	0	1	24	38	62		
April,	9	8	2	1	1	2	0	2	0	1	4	3	3	2	3	1	1	2	1	2	2	1	1	1	32	28	60		
May,	3	5	2	1	1	1	1	5	2	1	3	5	3	3	4	1	3	0	1	2	0	1	0	2	23	27	50		
June,	5	3	2	3	1	1	2	1	4	3	3	5	4	2	2	1	3	2	1	2	0	1	0	1	27	25	52		
July,	9	6	5	3	0	2	3	0	0	3	5	4	7	0	3	0	1	1	0	5	0	1	0	1	35	26	61		
August,	13	10	6	8	4	0	2	1	1	0	8	6	4	5	3	3	0	1	0	2	1	3	1	1	43	40	83		
September,	13	7	8	9	3	5	1	5	4	3	6	6	7	4	5	2	2	2	5	1	2	0	1	1	52	51	103		
October,	15	4	8	6	2	2	2	1	4	2	9	4	8	7	3	3	6	2	4	8	3	2	1	8	65	50	115		
November,	6	3	5	1	2	1	1	0	4	0	2	6	7	3	3	4	6	1	5	3	1	7	0	5	42	34	76		
December,	4	6	3	1	3	5	1	0	1	2	5	5	6	11	5	5	4	5	0	3	1	8	0	0	33	51	84		
																									421	433	854		

* Including one Female from 90 to 100.

* Including one Female from 90 to 100.

The Deaths above mentioned were caused by Diseases and Casualties as follows:

Apoplexy	3	Croup	6	Fever, Inflammatory	2	Fits	19	Hoopings Cough	2	Influenza	1	Old Age	44	Scrofula	1
Burns	2	Diseases unknown	75	— Malignant, †	4	Fungus Hæ-	1	Jaundice	1	Lethargy	1	Palsy	11	Spasms	2
Cancer	5	Dropsy	14	— Pleurisy	2	matodes	1	Infantile Dis-	1	Marasmus	1	Phrenitis	1	Still-born	21
Casualty	4	Drowned	12	— Puerperal	4	Gout	1	cases	222	Measles	21	Poison	1	Sudden	11
Cholera Morbus	1	Dysentery	12	— Pulmonic	67	Hepatitis	3	Inflammation of	1	Mortification	6	Quinsy	7	Suicide	6
Consumption	190	Dyspepsia	1	— Putrid	11	Hydrocephalus	34	the Brain	2	Murdered	1	Scalds	3	Tabics	2
Cramp	2	Fever, Bilious	2	— Typhus	34	Internus	3	Insanity	2	Neurosis	1	Small Pox†	4	W. Swelling	1

† These cases occurred in the Hospital on Rainsford's Island.

☞ Boston lies in 42° 23' 15" North latitude, and 70° 52' 42" West longitude. The Census of 1810, in the month of August, states the number of Inhabitants at 33,350.

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